



Wenck Associates, Inc.

Mr. Alan Sorsher

February 9, 1989

Page Two


Consulting Engineers
(612) 475-0858
FAX - (612) 476-0504

We would like to proceed with construction by March 7, 1989. We are available to meet with you during the week of February 20, 1989 regarding specifics of this report and the vapor probes. Would Thursday, February 23, in the morning be a good time for you? Please let me know so that we can schedule accordingly.

Your attention to this matter is appreciated.

Respectfully submitted,

WENCK ASSOCIATES, INC.



Christopher F. Thompson, P.E.

CFT/rel

Attachments

cc: Gordon Louttit - Whittaker
Glen Abdun Nur - Bermite
John Peloquin - Bermite
Michael Fernandez - EPA Region IX

SUBSURFACE VAPOR PROBE PLAN AT THE 317 AREA

Prepared for:


Bermite Division
Whittaker Corporation
22116 West Soledad Canyon Road
Saugus, California 91350

Prepared by:

Wenck Associates, Inc.
832 Twelve Oaks Center
15500 Wayzata Boulevard
Wayzata, Minnesota 55391

February 1989

I hereby certify that this report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of California.


Norman C. Wenck, P.E.

California Registration No. 41317

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SUBSURFACE VAPOR PROBE PLAN AT THE 317 AREA

I. INTRODUCTION

A. History of Soils Investigation at the 317 Area

The Bermite Division of Whittaker Corporation discontinued operations effective April 3, 1987. In April 1987, a Revised RCRA Closure Plan was submitted to the California Department of Health Services (DHS) and to the U.S. Environmental Protection Agency (EPA) Region IX for approval. The DHS and the EPA approved the Closure Plan, with modifications, via their letter of transmittal dated December 28, 1987. The Plan specifies the activities required for closure of the various RCRA units which were present at the facility. The RCRA unit, labeled 317 Area, is a former surface impoundment for storage of spent solvents. This unit was closed in 1983.

Pursuant to the Closure Plan, a Work Plan For Soils Investigation and Removal at the 317 Area was implemented for the purpose of characterizing the vertical and horizontal extent of volatile organic compounds (VOC's) in the soils at this RCRA unit. This Work Plan is contained in the Closure Plan and is incorporated herein by reference.

The soils investigation and removal at the 317 Area has proceeded in a number of stages. An initial trench, 165' long by 30' deep, was excavated. This initial trench was widened as it was determined that the horizontal extent of VOC extended to the north of the initial trench.

Two additional trenches labeled B and C, were next excavated in an effort to further define the extent of the VOC contaminated soils. After completion of the two

additional trenches, the excavation consisted of a triangular shaped area approximately 180' on a side and 30 feet deep. Although the horizontal extent of VOC was well defined at this point, the depth to which VOC existed was not known. A fourth excavation labeled, Trench D, was then completed to a depth of 20' below the bottom of the excavation created by the initial trench and trenches B and C. This brought the total depth of the excavation to 50' below the original ground surface. The present approximate 317 Area site contours are shown on the attached Figure 1. This figure also shows the location of one other RCRA unit, the 342 Area. Correspondence relating to the excavation of the trenches at the 317 Area is included as Appendix A.

The soils from the 317 Area were analyzed in the field as they were excavated and soil samples were collected and analyzed at a DHS certified laboratory. A report, Progress Report of Soil Characterization at the 317 Area, dated March 1988 was submitted to the DHS and EPA after completion of the initial trench. The results of the excavation of Trench B and C were submitted to the DHS and EPA in a report titled, Soil Characterization at the 317 Area Progress Report No. 2, dated June 1988. The results of the excavation of soils from Trench D, recently completed, are included herein.

The vertical extent of VOC extends to some depth below the present depth of Trench D. The horizontal extent has continued to be confined within the limits of the excavation as was also found in the removal of soils for Trenches B and C.

A geologic cross section through the 317 Area is schematically shown on the enclosed Figure 2. The information on the subsurface soils was obtained from the borings of groundwater monitoring wells installed at the 317 Area (discussed below). The approximate area from which soils have been excavated, the relative depths of the excavation, the proposed vapor probe depth and the depth to the first encountered groundwater are indicated on Figure 2.

B. Purpose of Vapor Probes

The Closure Plan allows for the determination of the vertical extent of the VOC by excavation and characterization of soils or by the installation and testing of subsurface vapor probes. Because the extent has not yet been determined by the completion of Trench D, vapor probes will be installed. The vapor probes will be used to determine the presence and concentration of VOC at depths below the present ground surface. Three probe nests of six probes per nest will be constructed in the area of known VOC contamination. The results of the vapor probe analysis will allow placement and depth determination of additional vapor probes and verification borings. The verification borings, another requirement of the Closure Plan for the 317 Area, are for the purpose of verification of the VOC extent in the soils. These verification borings are discussed in Soil Characterization at the 317 Area, Progress Report No. 2, June 1988.

C. Additional Background Data

As a requirement of the Closure Plan, groundwater monitoring at the 317 Area has been initiated. A Groundwater Sampling and Analysis Plan was prepared and sent to the DHS and EPA in August 1988. The first groundwater sampling event was completed in October 1988, and the RCRA Groundwater Quarterly Sampling Report No. 1, December 1988 has been submitted to the DHS and EPA.

The installation and construction of the four groundwater monitoring wells at the 317 Area took approximately nine months. As each well was completed, it was then sampled for the presence of VOC. The analysis for VOC is a requirement of the Groundwater Sampling and Analysis Plan. To date there has been no detection of

VOC in the groundwater samples. The locations of the four monitoring wells are indicated on Figure 1.

II. SOIL CHARACTERIZATION RESULTS TO DATE - TRENCH D

A. General

The proposal for further excavation and characterization of the VOC contaminated soils at the 317 Area, from the area known as Trench D, is contained in correspondence to the DHS and EPA and the South Coast Air Quality Management District, copies of which are contained in Appendix A. The location of Trench D and the grid for excavation and sampling control are indicated on Figure 3.

The excavation and characterization of Trench D proceeded in the same manner as the excavations of the earlier trenches. The soils were tested for VOC with an organic vapor analyzer (OVA) prior to the soils being removed from the ground. These readings were taken at a depth of between 6 and 12" below the surface of the soils. These readings were taken at each node and to the outside of the nodes, every two feet to a depth of 20'. The field OVA readings at each node are included in Table 1. Soil samples were also collected at these two foot intervals. A sample from an area of both a high field OVA reading and a sample from a low field OVA reading was collected and analyzed by EPA Method 8240. The Chain-of-Custody documentation for the samples is included as Appendix B. The laboratory reports for the samples are included as Appendix C. A summary of the analytical results are contained in Table 2.

B. Findings/Results

The field and laboratory results from Trench D correlate well with the field and laboratory results from the initial trench and trenches B and C. The same volatile organic compounds were found in the soils in Trench D as in the other trenches.

Again, the main VOC detected in the soils was tetrachloroethene and trichloroethene. The actual concentrations of VOC determined by laboratory analysis are generally lower, however, in Trench D than in the other trenches. The highest concentration of VOC in the laboratory analyzed samples was 25 mg/kg of trichloroethene and the majority of the concentrations that were detected were in the low mg/kg range. These concentrations are much lower, generally, than the concentrations determined in the samples from Trenches B and C and the initial Trench A, (see Table 3, Progress Report of Soil Characterization at the 317 Area, March 1988 and Tables 3 and 4, Soil Characterization at the 317 Area Progress Report No. 2, June 1988).

The field OVA readings show that soils containing VOC probably do not extend into the walls of the excavated Trench D. The highest concentrations of VOC, as determined by the OVA, occur along the B and C nodes in the middle of the trench.

C. Conclusions

From the results presented above, it is seen that the vertical extent of VOC contaminated soils is at some depth below the bottom of Trench D. The actual concentration of the VOC in the soils is generally less at depths of 30 to 50 feet below the original ground surface at the 317 Area than from the ground surface to the 30 foot depth.

III. VAPOR PROBE PLAN

A. Location of Probes

Three vapor probe nests will be installed from the present ground surface in Trench D down to a maximum depth of 120'. These probe nests will be located as indicated on the enclosed Figure 3. These locations have been chosen to be in the area of the highest field OVA readings taken during the excavation of the last lift in Trench D. Six vapor probes will be installed in each of the three probe nests.

B. Probe Construction

Probe construction details are shown on the enclosed Figure 4. The individual probes will be constructed of 1/2", nominal diameter, schedule 80 PVC casings and 1/2", nominal diameter, 2' long schedule 80 PVC screens with 0.010 slot size openings. The screened section of each probe will be gravel packed with a Lone Star No. 3 sand gravel pack or equal.

The probes will be installed in augured borings, as indicated on the enclosed Figure 4. The three borings will be augured with an 8-inch diameter, hollow stem auger until refusal or until a depth 20 feet below the point where a split-spoon sample does not indicate the presence of VOC's. The presence of VOC's will be determined by an OVA meter in the field. Split-spoon samples, from the borings, will be taken at approximately 20 foot intervals from the present ground surface. Upon refusal, the auger will be removed from the boring, and the drilling method will then be switched to mud rotary. This mud rotary drilling will also proceed until 20' past the point where no OVA readings are detected in the split-spoon sample or to a maximum depth of 120 feet. The minimum depth of the borings will be 30 feet. Again, split-spoon

samples will be collected at approximately 20 foot intervals with an additional sample collected at the bottom of the boring (30 to 120 feet).

In the event that mud rotary drilling is required, once the total depth is reached, the drilling equipment and mud will be removed from the borehole. At this time, the probes and associated gravel pack and sand/bentonite seals will be placed. Six probes will be equally spaced in each boring making the distance between probes variable from 5 to 20 feet on center depending on the total depth of the boring.

The screened section of each probe will be separated by up to 14' of a No. 60 silica sand and dry bentonite mixture. The sand/bentonite mixture will be mixed to a ratio of 3 or 4 parts sand to 1 part bentonite. Sufficient moisture will be present in the boring to allow the bentonite material to expand and seal the boring between probes. Up to two feet of the No. 60 silica sand will be placed on top of the gravel pack of each screened section.

C. Vapor Probe Monitoring Program

The individual vapor probes will be sampled for the presence of VOC's. Field measurements will be taken with an OVA properly calibrated to a standard calibration gas. The OVA will be connected to the top of each vapor probe by a flexible tygon tube from the OVA meter to a static pressure tap located on the top of each vapor probe PVC casing (see Figure 4). The OVA will be allowed to pull air from the vapor probe for a time sufficient to remove air that was located in the soils outside the screen of the respective probe. A table will be prepared for the sample personnel indicating the air removal times required as a function of probe depth. The OVA readings will be recorded in the field. This monitoring of the probes will be performed in a manner to ensure that representative vapor samples are collected.

D. Data Analysis

The results of the field OVA readings will be compared to the OVA field readings taken during the excavation procedures and these results will then be used to estimate the concentration and quantity of VOC remaining in the soils.

E. Reporting

All aspects of the vapor probe construction, as-built drawings of the vapor probes and results of analytical testing will be prepared and presented to the DHS and EPA in a report approximately 60 days after completion of the vapor probes.

IV. SUMMARY

As a result of the soil removal and characterization activities at the 317 Area, VOC contaminated soils have been successfully removed from the 317 Area. The full extent of VOC in the soils will require placement of subsurface vapor probes.

The vapor probes will be constructed and tested in a manner which will allow determination of the depth to which the VOC exists. These results will provide the data required to locate soil verification borings.

TABLES

TABLE 1
317 AREA SOIL CHARACTERIZATION
TRENCH D - FIELD OVA READINGS, ppm

Depth (ft)	Date	A 1	A 2	A 3	A 4	A 5	A 6	A 7	A 8	B 1	B 2	B 3	B 4	B 5	B 6	B 7	B 8
2	31-Aug-88	20	5	20	100	150	150	150	--	7	300	250	300	25	45	40	--
4	02-Sep-88	0	0	0	100	15	30	10	--	5	4000	2000	1500	10	200	30	--
6	07-Sep-88	150	100	60	15	70	90	60	--	4000	0.01	4500	3800	290	260	130	--
8	08-Sep-88	70	250	170	250	250	300	300	--	150	600	0.01	0.01	0.008	0.00	0.00	--
10	12-Sep-88	120	400	1100	2000	400	1000	350	450	9000	9000	2500	5000	1500	800	1000	750
12	13-Sep-88	75	500	700	500	250	50	175	--	250	10000	10000	10000	1000	1000	2000	--
14	14-Sep-88	150	1000	1200	1800	1000	500	200	200	1500	10000	5000	6000	800	250	1500	400
16	14-Sep-88	70	600	1000	400	250	250	125	200	600	10000	10000	10000	750	900	450	200
18	16-Sep-88	200	500	450	4000	500	200	100	50	250	10000	600	10000	300	200	250	50
20	16-Sep-88	400	500	500	450	400	500	600	500	200	10000	10000	10000	5000	250	300	200

TABLE 1 (CONT'D.)

317 AREA SOIL CHARACTERIZATION

TRENCH D - FIELD OVA READINGS, ppm

ft	Date	Depth (ft)	C 1	C 2	C 3	C 4	C 5	C 6	C 7	C 8	D 1	D 2	D 3	D 4	D 5	D 6	D 7	D 8
4	31-Aug-88	2	500	300	25	10	10	15	100	--	28	25	20	150	150	20	20	--
8	02-Sep-88	4	25	0	0	0	70	50	15	--	4	0	0	4	0	0	0	--
12	07-Sep-88	6	1400	600	150	70	50	40	75	--	70	100	45	40	60	30	45	--
16	08-Sep-88	8	1000	0.01	200	170	200	250	100	--	250	500	200	250	250	250	150	--
20	12-Sep-88	10	600	2000	600	600	400	75	75	120	120	180	80	150	220	300	210	100
24	13-Sep-88	12	500	500	150	500	200	100	250	--	300	50	100	100	100	200	100	--
28	14-Sep-88	14	4000	1000	400	1200	700	400	1000	500	60	150	190	350	200	250	150	325
32	14-Sep-88	16	10000	10000	400	1000	250	300	400	250	100	175	175	200	250	300	150	50
36	16-Sep-88	18	1200	3000	300	300	500	150	100	100	180	500	250	100	200	150	150	180
40	16-Sep-88	20	500	1000	300	200	400	400	700	250	900	450	250	80	100	200	100	90

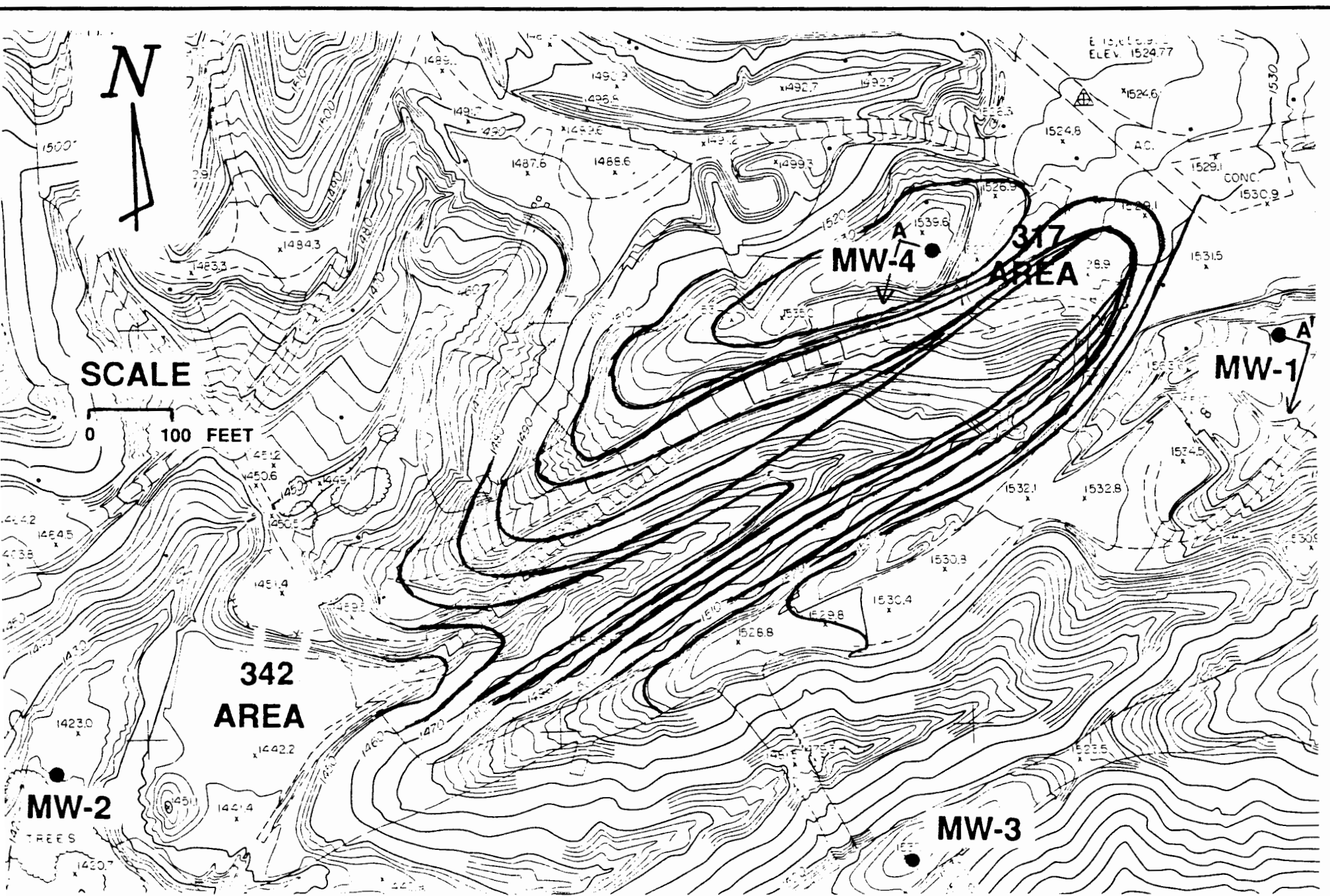
TABLE 2
317 AREA SOIL CHARACTERIZATION
SOIL ANALYTICAL RESULTS - TRENCH D

LIFT	DEPTH (ft)	SAMPLE NODE	ACETONE (mg/kg)	TETRA- CHLORO- ETHENE (mg/kg)	TRI- CHLORO- ETHENE (mg/kg)	TOLUENE (mg/kg)	CHLOROFORM (mg/kg)	METHYL ETHYL KETONE (mg/kg)	LAB TOTAL (mg/kg)
4	2	B1	ND	0.23	0.05	ND	ND	ND	0.28
	2	C1	ND	ND	ND	0.02	ND	ND	0.02
8	4	B2	ND	1.40	0.50	ND	ND	ND	1.90
	4	C2	ND	ND	ND	0.01	ND	ND	0.01
12	6	B3	ND	0.05	0.06	ND	ND	ND	0.11
	6	A4	0.08	ND	ND	0.01	ND	ND	0.08
16	8	B3	ND	2.10	0.66	ND	ND	ND	2.76
	8	A1	0.13	ND	ND	0.02	ND	ND	0.15
20	10	B1	ND	13.00	ND	ND	ND	ND	13.00
	10	A1	ND	ND	0.02	0.02	ND	ND	0.03
24	12	A1	3.00	3.33	0.63	ND	ND	2.80	9.75
	12	B2	ND	ND	0.02	0.03	ND	ND	0.04
28	14	B2	ND	16.00	25.00	ND	ND	ND	41.00
	14	B2	ND	5.75	2.75	ND	ND	ND	8.50
	14	A8	ND	ND	0.01	0.02	ND	ND	0.03
32	16	B3	3.40	0.14	0.10	ND	ND	2.30	5.94
	16	A17	0.15	ND	0.02	0.01	ND	ND	0.18
36	18	B2	6.07	0.86	2.10	ND	ND	3.70	12.90
	18	D4	ND	ND	0.01	ND	ND	ND	0.01
40	20	B2	ND	ND	8.15	ND	8.30	ND	16.45
	20	A7	2.80	ND	0.22	0.28	ND	1.00	4.30

NOTE:

N.D. - NOT DETECTED

FIGURES



BERMITE DIVISION - WHITTAKER CORPORATION

317 Area Site Plan



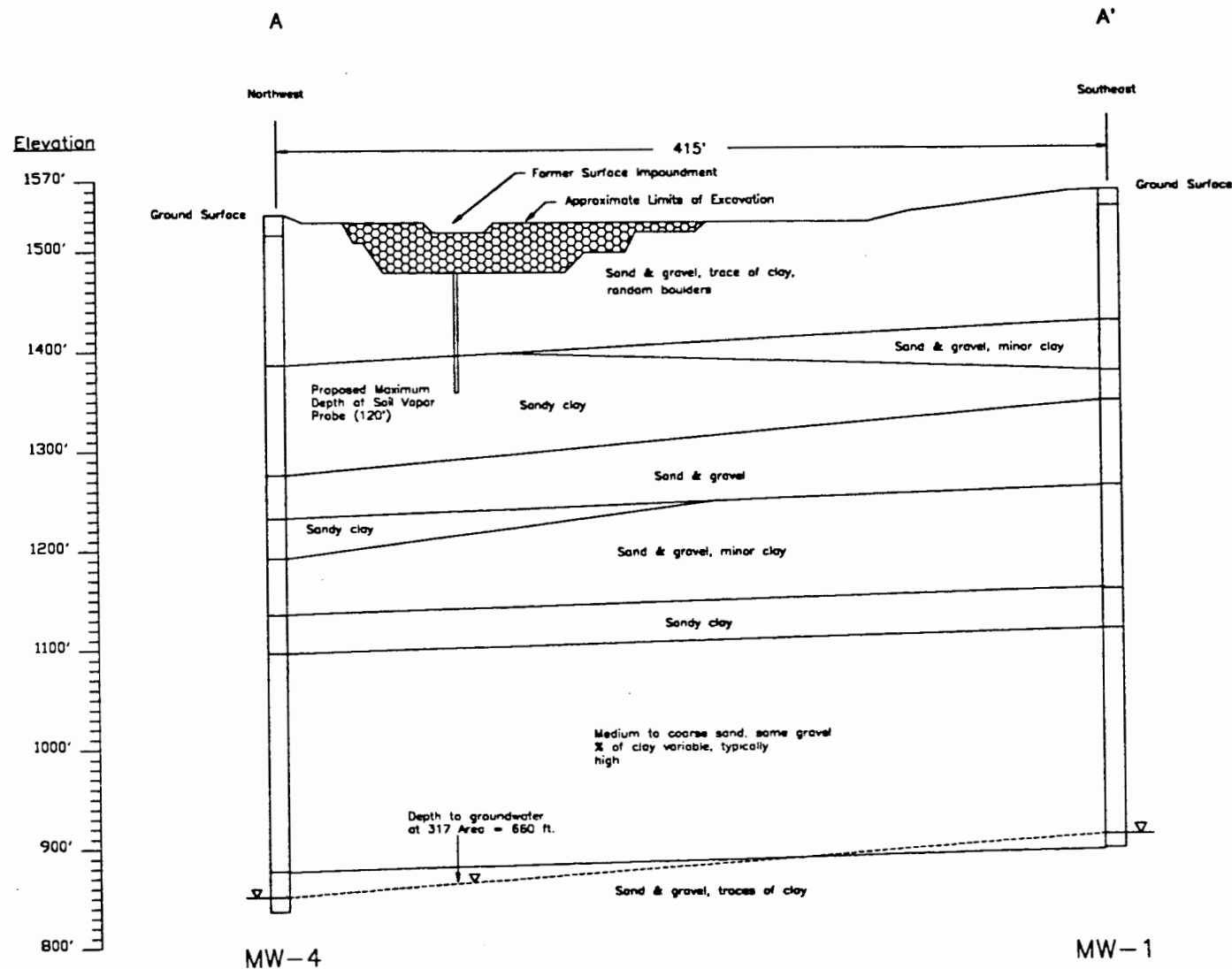
Wenck Associates, Inc.

Consulting Engineers

Twelve Oaks Center
15500 Wayzata Blvd.
Wayzata, MN 55391

FEB 1989

Fig. 1



Note: Cross-Section Generated From Well Boring Logs

MW4 = Groundwater Monitoring Well4

MW1 = Groundwater Monitoring Well1

DRAWING NOT TO SCALE

BERMITE DIVISION - WHITTAKER CORPORATION

Geological Cross-section Through 317 Area



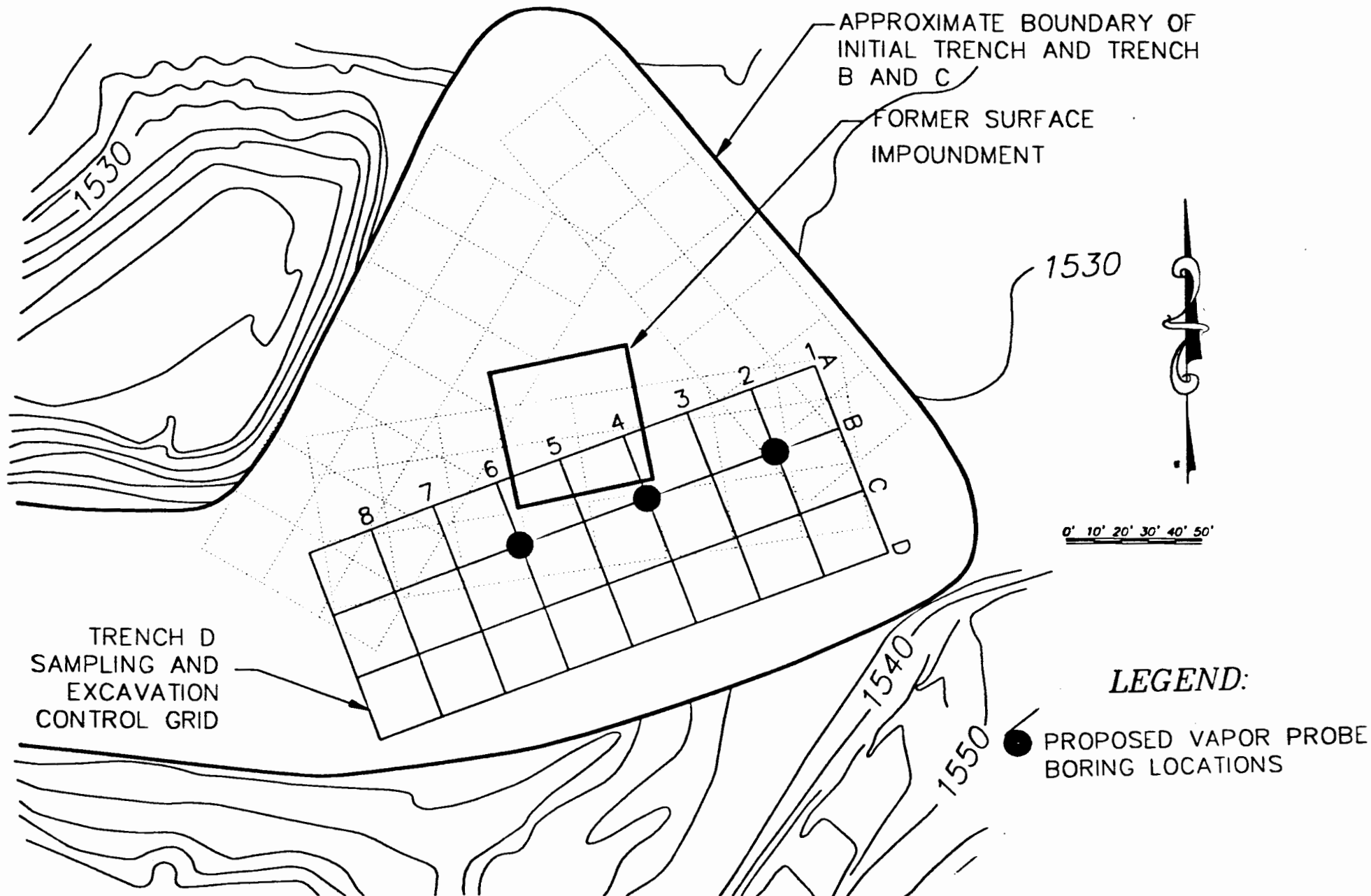
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Wayzata, MN 55391

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Fig. 2



BERMITE DIVISION - WHITTAKER CORPORATION

Proposed Vapor Probe Locations at 317 Area



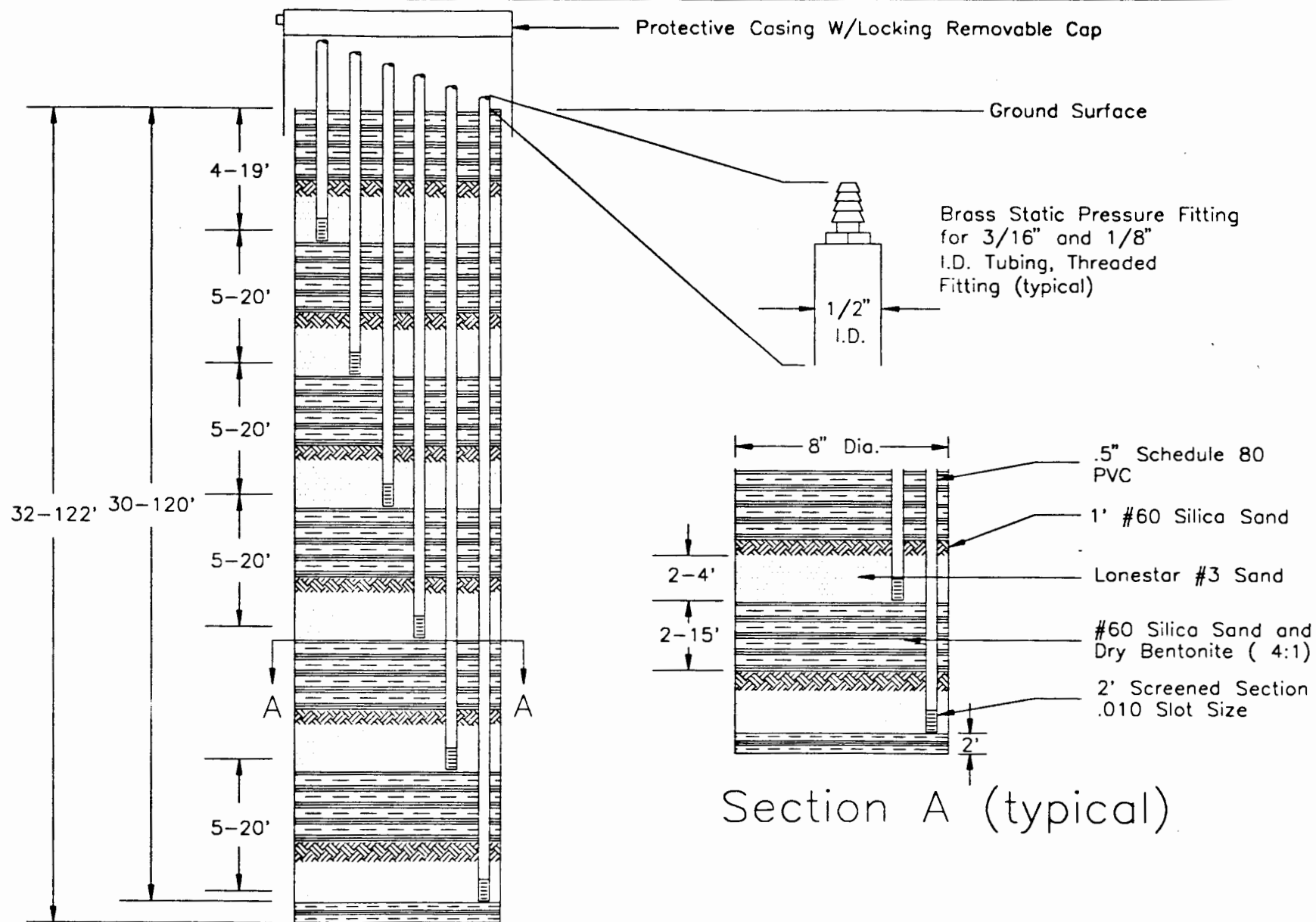
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Fig. 3



Note: Drawing Not To Scale

BERMITE DIVISION - WHITTAKER CORPORATION

Vapor Probe Construction Details



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FEB 1989

Fig. 4

APPENDIX A
CORRESPONDENCE



Wenck Associates, Inc.

August 25, 1988

Consulting Engineers
(612) 475-0858
FAX - (612) 476-0504

Mr. Alan Sorsher
Department of Health Services
Toxic Substances Control Division
107 South Broadway, Room 7128
Los Angeles, California 90012

Re: Progress Report No. 17 -
Approved RCRA Closure Plan Activities
Through August 26, 1988

Dear Mr. Sorsher:

Since the time of our last progress report of the RCRA Closure activities, the data compiled during the soil characterization of the 317 former surface impoundment has been sent to you in a report entitled, Soil Characterization at the 317 Area, Progress Report No. 2 dated June, 1988. In addition, a fourth RCRA groundwater monitoring well that was proposed to you on May 10, 1988 has been completed.

As was reported in the Soil Characterization at the 317 Area, Progress Report No. 2, the extent of the VOC-contaminated soils has been determined in the horizontal direction but not the vertical direction. At the 30 foot depth of the excavation at the 317 area, soils exhibiting VOC vapors are known to exist as outlined on Figure 26 of the above referenced report.

As directed by the Approved RCRA Closure Plan, verification borings are to be installed at the 317 Area to verify that the extent of VOC contamination has been determined. A plan for the installation of these was presented in the above referenced report. We discussed this plan briefly in our telephone conversation on August 5, 1988. It is our intention to install the verification borings as indicated on Figure 27 of the referenced report beginning on approximately September 12, 1988.

In accordance with the Approved RCRA Closure Plan we have decided to characterize the vertical extent of VOC-containing soils by expanding the technique of trenching at the 317 Area. This characterization and soil removal will be completed in a similar manner to the recently completed soil removal at the 317 Area.



Wenck Associates, Inc

Mr. Alan Sorsher

Page Two

August 23, 1988

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We have proceeded with the necessary permission to excavate these soils from the South Coast Air Quality Management District. Attached herein you will find our correspondence and the granted exemption from District Rule 1150 pertaining to the excavation. As a result of a new District Rule, Rule 1166, a Rule 1166 Mitigation Plan for Volatile Organic Emission, as defined by the District, is required. Also enclosed herein you will find our Mitigation Plan which has been submitted to the South Coast Air Quality Management District. This plan specifies what measures will be taken to identify, remove and dispose of volatile organic compound contaminated soils from the 317 area. Pursuant to District Rule 1166, we propose to haul these soils off-site to a permitted hazardous waste landfill.

The further characterization of the VOC-contaminated soils will commence on August 29, 1988. If you have any questions or comments to this plan, please let us know.

As we discussed on August 5, 1988, we are preparing an addendum to the Soil Characterization at the 317 Area, Progress Report No. 2 which will address the analysis results of the base-neutral-acids compounds analyzed in the soils at the near bottom of the three initial excavation trenches.

You will find attached the Documentation Report on the fourth RCRA groundwater monitoring well and the RCRA groundwater monitoring system consisting of RCRA groundwater monitoring wells one through four. Well W-4 is located downgradient of the 317 former surface impoundment. As indicated in the referenced report, water samples taken from all wells show that no volatile organic compounds exist in the groundwater beneath the 317 area.

By copy of this letter we are submitting to you the revised Groundwater Sampling and Analysis Plan as a requirement of the approved RCRA Closure Plan. We have revised this plan in accordance with your letter of March 23, 1988.

The Groundwater Sampling and Analysis Plan delineates the sample plan and analytical parameters. You have indicated the desire to split sample with us for your own analysis. Please be prepared to split sample during the first sampling episode which is planned for October 4, 1988.



Wenck Associates, Inc

Mr. Alan Sorsher

Page Three

August 23, 1988

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Also enclosed with this progress report is a Documentation Report responding to the EPA Request for Information Regarding Potential Releases from Solid Waste Management Units at the Bermite Facility. This response indicates the existence of solid and hazardous waste management units at the Bermite facility, including the RCRA units addressed in the Approved RCRA Closure Plan, underground storage tanks formerly used at the Bermite facility, and former landfills at the site.

Please review the enclosed documents and call with any questions.

Sincerely,

WENCK ASSOCIATES, INC.



Christopher F. Thompson, P.E.

CFT/cmk
Enclosures

cc: Michael Fernandez, EPA
Larry Peterson, RWQCB
Gordon Louttit, Whittaker



Wenck Associates, Inc.

Consulting Engineers
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December 22, 1988

Mr. Alan Sorsher
Department of Health Services
Toxic Substances Control Division
107 S. Broadway, Room 7128
Los Angeles, California 90012

Re: Progress Report Number 18
Approved RCRA Closure Plan Activities through December 16, 1988

Dear Mr. Sorsher:

Since the time of our last progress report on August 25, 1988 regarding the RCRA closure activities at Bermite we have continued the soil characterization at the 317 area and have completed the groundwater sampling event No. 1 of the four RCRA groundwater monitoring wells at the 317 and 342 areas. In accordance with the RCRA closure plan we have proceeded to excavate the soils in the area of the former 317 surface impoundment in an attempt to define and characterize the VOC contaminated soils at this site. In addition, in accordance with the Groundwater Sampling and Analysis Plan for the groundwater sampling of the 317 and 342 areas we have completed sampling event No. 1 and have compiled the information from that sampling episode into a quarterly report for your review and approval.

Attached you will find the report "RCRA Groundwater Sampling - Quarterly Sampling Report No. 1," December 1988. This report details the methods and protocol of groundwater sample collection and analysis and the resulting concentrations of all compounds analyzed. All activities, sampling protocols and analysis protocols were performed in accordance with the Groundwater Sampling and Analysis Plan and with standard practices for this type of work.



Wenck Associates, Inc.

Mr. Alan Sorsher
December 22, 1988
Page two

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As you will see in your review of the attached report, the groundwater both upgradient and downgradient of the 317 former surface impoundment has been verified free of hazardous constituents and in fact the quality of this groundwater as defined by the presence or absence of the analytes is excellent. No volatile organic compounds have been detected in the groundwater samples collected from the RCRA groundwater monitoring wells during this first sampling event or prior sampling over the last 12 month period. You will note that the groundwater at the Bermite facility is actually cleaner than the water which was obtained from a commercial water company for drilling water during the installation of RCRA monitoring well MW-2.

In accordance with the Groundwater Sampling and Analysis Plan we are proposing that the second groundwater sampling event take place during the week of January 16, 1989. Subsequently, the third and fourth groundwater sampling events are proposed for April and July of 1989. As per our recommendations in the attached report, we are proposing to reduce the number of compounds to be analyzed in future groundwater sampling events. This is in accordance with the Groundwater Sampling and Analysis Plan and as a result of the findings of the first groundwater sampling event.

Because the characterization of the VOC contaminated soils at the 317 area has continued, we have not yet completed verification borings around the perimeter of the 317 area. The excavation of possible VOC contaminated soils has continued beyond the originally estimated 30 foot depth at the 317 area. This has necessitated the removal of soils around the perimeter of the 317 area in order that we comply with standards regarding the slope and height of excavated walls. Because the vertical extent of the VOC contaminated soils at the 317 area has extended beyond that which we originally believed, soil borings will be performed in January 1989 to determine the vertical extent. This will take place at the same time that we continue our excavation efforts to determine the extent of VOC contaminated soils.



Wenck Associates, Inc.

Mr. Alan Sorsher
December 22, 1988
Page three

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Though brief, this information should bring you up to date on the activities taking place at Bermite. If you have any questions regarding the above, please do not hesitate to call.

Sincerely,

WENCK ASSOCIATES, INC.

Christopher F. Thompson, P.E.

CFT/rel

Enclosure

cc: Gordon Louttit - Whittaker
John Peloquin - Bermite
Michael Fernandez - EPA Region IX
Elizabeth Lafferty - DHS
Larry Peterson - Los Angeles RWQCB



South Coast
AIR QUALITY MANAGEMENT DISTRICT

9150 FLAIR DRIVE, EL MONTE, CA 91731 (818) 672-6200

August 16, 1988

Ms. Marsha S. Croninger
Jones, Day, Reavis & Pogue
355 South Grand Avenue, Suite 3000
Los Angeles CA, 90071

Dear Ms. Croninger:

Reference is made to your letter dated July 25, 1988 regarding the proposed excavation of hydrocarbon contaminated soil at 22116 W. Soledad Canyon Rd. in Saugus, California. It is our understanding that this excavation will consist of removing an additional 2,000 cubic yards of soil within Impoundment No. 317 over a six week period. Based on the information provided and current requirements, the South Coast AQMD will not require a written permit for this proposed excavation and thus grants a conditional exemption pursuant to District Rule 1150 (c)(4). Please be advised however that you will have to comply with the District Rules 402, 403, & 1166 (3 copies attached). This will be the final exemption granted for the remedial investigation of the Whittaker Bermite Division facility.

CONDITIONS

1. THIS EXCAVATION SHALL BE CONDUCTED IN COMPLIANCE WITH ALL PLANS AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
2. THIS EXCAVATION PERMIT IS VALID UNTIL SEPTEMBER 30, 1988. AN EXTENSION MAY BE GRANTED UPON WRITTEN REQUEST. SUCH A REQUEST WILL INCLUDE THE REASONS THE EXTENSION IS REQUIRED, THE LENGTH OF THE EXTENSION, AND THE STATUS OF THE EXCAVATION TO DATE.
3. THE SCAQMD SHALL BE NOTIFIED WHEN THE EXCAVATION COMMENCES AND WHEN IT IS COMPLETED. SUCH NOTIFICATIONS SHALL OCCUR AT LEAST TWO (2) DAYS PRIOR TO THE COMMENCEMENT AND WITHIN FIVE (5) DAYS AFTER THE COMPLETION OF THE EXCAVATION, RESPECTIVELY.

4. ALL CONDITIONS REQUIRED BY THE DEPARTMENT OF HEALTH SERVICES IN THEIR LETTER TO MR. GORDEN LOUTTIT DATED NOVEMBER 16, 1987 SHALL REMAIN ACTIVE FOR THIS FINAL REMEDIAL INVESTIGATION (COPY ATTACHED).
5. THIS EXCAVATION PERMIT IS VALID ONLY FOR THE REMOVAL OF APPROXIMATELY 2,000 CUBIC YARDS OF SOIL CONTAMINATED WITH HYDROCARBONS.
6. EXCAVATION SHALL NOT BE CONDUCTED BETWEEN THE HOURS OF 4 P.M. AND 6 A.M. OR ON SATURDAYS, SUNDAYS AND LEGAL HOLIDAYS.
7. EXCAVATION SHALL NOT BE CONDUCTED ON DAYS WHEN THE SCAQMD FORECASTS SECOND OR THIRD STAGE EPISODES FOR AREA NUMBER 13. EPISODE FORECASTS FOR THE FOLLOWING DAY CAN BE OBTAINED BY CALLING (800) 445-3826 OR (800) 242-4666.
8. EXCAVATION SHALL NOT BE CONDUCTED ON DAYS WHEN THE SCAQMD REQUIRES COMPANIES IN AREA NUMBER 13 TO IMPLEMENT THEIR SECOND OR THIRD STAGE EPISODE PLANS. AREA NUMBERS REQUIRED TO IMPLEMENT THEIR PLANS CAN BE DETERMINED FOR THE NEXT DAY BY CALLING (800) 445-3826 OR (800) 242-4666.
9. EXCAVATION SHALL NOT BE CONDUCTED WHEN THE WIND SPEED IS GREATER THAN 15 MPH AVERAGE OVER 15 MINUTES, OR THE WIND SPEED INSTANTANEOUSLY EXCEEDS 25 MPH.
10. DURING THE PERIOD THIS EXCAVATION PERMIT IS VALID, ALL WORKING AREAS, EXCAVATED MATERIAL AND UNPAVED ROADWAYS SHALL BE WATERED DOWN UNTIL THE SURFACE IS MOIST AND THEN MAINTAINED IN A MOIST CONDITION TO MINIMIZE DUST.
11. WHEN LOADING IS COMPLETED AND DURING TRANSPORT, NO MATERIAL SHALL EXTEND ABOVE THE SIDES OR REAR OF THE TRUCK OR TRAILER WHICH WILL HAUL THE EXCAVATED MATERIAL.

12. ALL EXCAVATED SOLID MATERIAL SHALL BE TRANSPORTED IN TRUCK BEDS OR TRAILERS WHICH ARE COVERED WITH AN IMPERMEABLE COVER, WITH SUCH COVERS TIED DOWN, TO PREVENT THE ESCAPE OF ANY SOLID MATERIAL DURING TRANSPORT. SUCH COVERS SHALL BE IN PLACE PRIOR TO THE VEHICLE DRIVING ON PUBLIC STREETS.
13. THE EXTERIOR OF TRUCKS (INCLUDING THE TIRES) HAULING EXCAVATED MATERIAL SHALL BE CLEAN PRIOR TO LEAVING THE EXCAVATION SITE.
14. DURING EXCAVATION, IF A CONSIDERABLE NUMBER OF COMPLAINTS ARE RECEIVED, ALL WORK SHALL CEASE AND THE APPROVED MITIGATION MEASURES SHALL BE IMPLEMENTED IMMEDIATELY. OTHER MITIGATION MEASURES WHICH ARE DEEMED APPROPRIATE BY SCAQMD PERSONNEL TO ABATE A NUISANCE CONDITION SHALL BE IMPLEMENTED UPON REQUEST.
15. IF ANY HAZARDOUS MATERIALS ARE ENCOUNTERED, OTHER THAN THOSE PREVIOUSLY IDENTIFIED IN THE EXCAVATION MANAGEMENT PLAN, THEN THE FOLLOWING PROCEDURES SHALL BE IMPLEMENTED:
 - A. OPERATIONS SHALL CEASE AND A CONTINUOUS COVER WILL BE APPLIED TO THE CONTAMINATED AREA.
 - B. THE SOUTH COAST AQMD SHALL BE NOTIFIED AND PROPER MITIGATION MEASURES AS APPROVED BY THE DISTRICT SHALL BE IMPLEMENTED.
 - C. THE CONTAMINATED POCKET OF SOIL SHALL BE INSPECTED, AND EXCAVATED, AND PLACED INTO LINED CONTAINERS WHERE IT WILL BE AND SEALED. TESTING AND DISPOSAL OF THE SOIL WITHIN THE CONTAINERS SHALL PROCEED BY THE GUIDELINES AS DESCRIBED BY YOUR ON-SITE INSPECTOR.
16. ALL MATERIALS THAT ARE LISTED AS HAZARDOUS BY A FEDERAL OR STATE AGENCY SHALL BE CONSIDERED "HAZARDOUS MATERIALS" FOR THE PURPOSE OF THIS PERMIT.

17. DURING EXCAVATION, CONTINUOUS MONITORING OF THE WIND SPEED AND DIRECTION SHALL BE CONDUCTED AT A SITE APPROVED BY THE SCAQMD.
18. DURING EXCAVATION AND SOIL HANDLING, CONTINUOUS MONITORING FOR ORGANICS AS HEXANE USING AN ORGANIC VAPOR ANALYZER (OVA) SHALL BE USED CONTINUOUSLY THREE INCHES ABOVE THE WORKING FACE.
19. IF THE OVA SHOWS A INSTANTANEOUS READING OF 50 PPMV OR GREATER AT THE WORKING FACE, EXCAVATION SHALL CEASE, THE EXCAVATION AREA SHALL BE COMPLETELY COVERED, AND THE DISTRICT SHALL BE NOTIFIED BY TELEPHONE WITHIN 24 HOURS OF DETECTION OF VOC CONTAMINATED SOIL. OPERATION SHALL NOT RECOMMENCE UNTIL A RULE 1166 PLAN HAS BEEN SUBMITTED AND APPROVED IN WRITING BY THE DISTRICT.
20. ALL MONITORS SHALL BE CALIBRATED DAILY USING A METHOD APPROVED BY THE DISTRICT.
21. IF A DISTINCT ODOR (LEVEL III OR GREATER) RESULTING FROM THE EXCAVATION IS DETECTED AT OR BEYOND THE PROPERTY LINE, THE EXCAVATION MUST CEASE AND THE APPROVED MITIGATION MEASURES IMPLEMENTED IMMEDIATELY. ODOR LEVELS WILL BE DETERMINED BY SCAQMD PERSONNEL OR ON-SITE SAFETY COORDINATOR IN THE ABSENCE OF SCAQMD PERSONNEL.
22. MITIGATION AND/OR MONITORING MEASURES, OTHER THAN THOSE INDICATED IN THESE CONDITIONS, WHICH ARE DEEMED APPROPRIATE BY SCAQMD PERSONNEL AS NECESSARY TO PROTECT THE COMFORT, REPOSE, HEALTH OR SAFETY OF THE PUBLIC, SHALL BE IMPLEMENTED UPON REQUEST.
23. ALL EXPOSED SOIL WHICH IS VISIBLY CONTAMINATED AND/OR ODORIFEROUS SHALL BE COVERED WITH POLYETHYLENE SHEETING OR A ONE (1) FOOT COVER OF CLEAN SOIL DURING EXCAVATION PROCEDURES.
24. EXCAVATED REFUSE SHALL NOT BE STOCKPILED ON-SITE. ALL EXCAVATED REFUSE SHALL BE DEPOSITED DIRECTLY INTO THE VEHICLES WHICH WILL HAUL IT AWAY FOR DISPOSAL.

Ms. Croninger

-5-

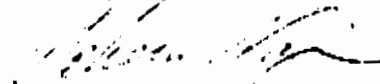
August 16, 1988

Other governmental agencies may require approval before any excavation begins. It shall be the responsibility of the applicant to obtain that approval. The South Coast Air Quality Management District shall not be responsible or liable for any losses because of measures required or taken pursuant to the requirements of this approved exemption from District Rule 1150.

If you have any further questions concerning this permit, please contact Mr. Greg Wood at (818) 571-5163.

Very truly yours,

William J. Dennison
Director of Engineering



Mohsen Nazemi
Supervising A.Q. Engineer

GGW
Enclosures (4)

JONES, DAY, REAVIS & POGUE

AUSTIN HONG KONG
CHICAGO LONDON
CLEVELAND NEW YORK
COLUMBUS PARIS
DALLAS RIYADH
GENEVA WASHINGTON

SUITE 3000
355 SOUTH GRAND AVENUE
LOS ANGELES, CALIFORNIA 90071

TELEPHONE: 213-625-3939

TELEX: 181439

TELECOPIER: 213-253-4439

DIRECT DIAL NUMBER:

3333 MICHELSON DRIVE
SUITE 400 - CORPORATE TOWER
PARK PLACE
IRVINE CALIFORNIA 92715
TELEPHONE 714-851-3939
TELEX 194911
TELECOPIER 714-553-7539

5924-hc-7100h
066533-016-012

July 25, 1988

Mr. Mohsen Nazemi
Supervising Air Quality Engineer
Engineering Division
South Coast Air Quality Management District
9150 Flair Drive
El Monte, California 91731

Re: Whittaker Corporation; Request for
Exemption From SCAQMD Rule 1150
for the purpose of final soil
characterization at Bermite Division,
Whittaker Corporation, Saugus, CA.

Dear Mr. Nazemi:

Thank you for agreeing to meet with me on Thursday,
July 28, 1988 at 2:00 p.m. As we discussed, the purpose of the
meeting will be to discuss the exemption request which is
described in this letter.

We are requesting, on behalf of the Whittaker
Corporation, a final conditional exemption from the permit and
excavation management plan requirements of Rule 1150 of the
Rules and Regulations of the South Coast Air Quality Management
District ("SCAQMD") for soil characterization at Whittaker's
Bermite Division facility in Saugus, California (the
"Facility"). The characterization is required by the State
Department of Health Services ("DHS"), the Environmental
Protection Agency, and the Regional Water Quality Control Board
-- Los Angeles Region, as part of ongoing closure activities
pursuant to the Resource Conservation and Recovery Act, 42
U.S.C. § 6901, et seq. ("RCRA"). This final stage of
characterization will complete remediation of the volatile

Mr. Mohsen Nazemi
July 25, 1988
Page 2

organic compound ("VOC") contamination which exists in soils at the Facility. For the reasons set forth below, these excavation activities continue to pose an insignificant risk of violating Section 41700 of the Health and Safety Code, and thus qualify for exemption under Rule 1150(c)(4).

The Bermite Division, located at 22116 W. Soledad Canyon Road, Saugus, California, is a former ordinance manufacturing facility which was closed in 1986. Various hazardous waste management units located at the facility, including the subject surface impoundment (identified as "Impoundment No. 317" because of the number of the building to which it was adjacent), are now undergoing closure. The purpose of the soil characterization is to determine the nature and extent of any contamination which may have resulted from Impoundment No. 317 or otherwise. This procedure is an integral part of the soils investigation being conducted as part of the closure process.

Three exemptions have been granted to date. This exemption will cover the final stage of characterization and excavation. The project has progressed smoothly so far and in accordance with the conditions for the exemptions previously granted by SCAQMD. We believe that it is both desirable and appropriate to complete this portion of the RCRA closure plan under an exemption in the same manner as the earlier phases.

The original request for an exemption for excavation of soils at the 317 Area included a contour map of the Bermite facility and surrounding areas. This map was included as an enclosure in our letter to the SCAQMD dated September 18, 1987. A localized contour map of the 317 Area was included as Figure 1 in the information sent in a letter dated March 28, 1988 from Wenck Associates, Inc. to Mr. Greg Wood at SCAQMD requesting the previous exemption which was granted by you on April 7, 1988. The area which is now proposed to be excavated further is indicated on the attached Figure 1 dated July, 1988.

Two tables showing the volatile organic compounds that have been identified by laboratory analysis during the most recent soil characterization excavations are attached. The majority of VOC's are trichloroethylene and tetrachloroethylene with smaller amounts of acetone and styrene. For each sample, the concentration in parts per million and the field OVA readings associated with that sample have been included.

Mr. Mohsen Nazemi
July 25, 1988
Page 4

As in the past, experienced personnel will be performing and supervising the proposed work. Mr. John Peloquin, the Program Safety Director, has more than 20 years experience with OSHA and employee safety program compliance. A Site Safety Plan is in effect now and will continue throughout the work.

The closest residential areas to the 317 area are approximately 3200 feet to the southwest. The closest commercial or industrial areas are over 4000 feet away.

It is estimated from the known concentration of VOCs in the soils excavated to date and the volume of soils estimated to be removed, that no more than 10 pounds per day of VOCs will be emitted from the excavated soils. Since this is the last phase of this project, we anticipate that the concentrations of VOCs will be decreasing relative to the earlier excavation work and therefore emissions will also decrease. It is estimated that the excavation will take 6 weeks to complete.

In view of the minute concentrations of organic solvents identified in these soils, the significant distance between the proposed excavation and any neighboring houses or businesses, the precautions and procedures which will continue to be utilized in conducting the work, and the fact that any emissions resulting from this final portion of the project will likely be even less than those which have already been exempted by the SCAQMD, it is clear that the proposed excavation will pose "an insignificant risk of violating Health and Safety Code Section 41700." (Rule 1150(c)(4).) Therefore, pursuant to Rule 1150(c)(4), the Whittaker Corporation respectfully requests an exemption from the permit and excavation management plan requirements of Rule 1150 for this final phase of the excavation.

Please call me if you have any questions or need additional information before our meeting.

Very truly yours,

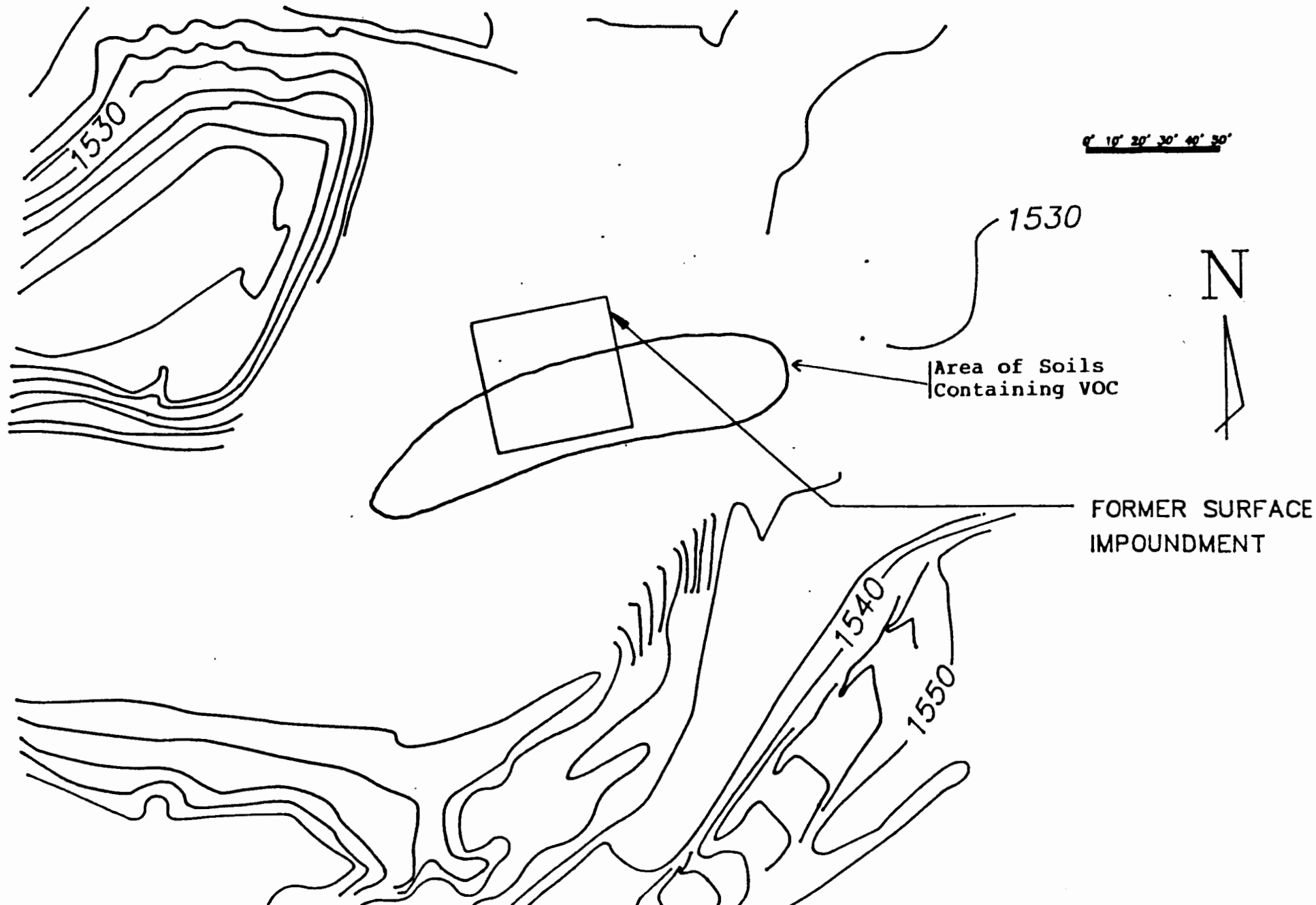

Marsha S. Croninger

Enclosure

cc: Greg Wood
Gordon J. Louttit, Esq.
Christopher F. Thompson

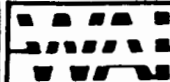
Mr. Mohsen Nazemi
July 25, 1988
Page 5

bcc: Stephen C. Jones, Esq.
Todd Maiden



BERMITE DIVISION - WHITTAKER CORPORATION

317 Area, Approximate Area of Additional Soil Removal Required



Wenck Associates, Inc.

Consulting Engineers

Twelve Oaks Center
15500 Wayzata Blvd
Wayzata, MN 55391

JUL 88

Fig 1

TABLE 3

 Bernite Division, Whittaker Corp., 317 Area Soil Characterization
 Laboratory Analysis Trench B

Lift	depth	Sample Node	Lab. Result (ppm)						Lab. Total (ppm)	IIVM Reading
			ACI	IEI	ICE	STH	ILN	MEA		
1	2.0	3.3	ND	ND	ND	ND	ND	0.11	0.11	8
		5.1	ND	ND	ND	ND	ND	0.06	0.06	0
5	4.0	4.1	ND	ND	ND	ND	ND	ND	0.00	15
		6.3	0.01	ND	ND	ND	ND	0.23	0.24	0
8	5.5	4.1	ND	ND	ND	ND	ND	ND	0.00	20
		5.3	0.01	ND	ND	ND	ND	ND	0.01	0
13	8.0	6.1	ND	ND	ND	ND	ND	ND	0.00	15
		7.3	ND	ND	ND	ND	ND	ND	0.00	0
16	9.5	5.1	ND	ND	ND	ND	ND	ND	0.00	4
		9.1	ND	0.01	ND	ND	ND	ND	0.01	6
20	11.5	8.4	ND	0.01	ND	ND	ND	ND	0.01	75
		5.3	ND	ND	ND	ND	ND	ND	0.00	0
24	13.5	9.4	ND	ND	ND	ND	ND	ND	0.00	300
		2.2	ND	ND	ND	ND	ND	ND	0.00	0
		2.2	ND	ND	ND	ND	ND	ND	0.00	0
28	15.5	8.4	ND	ND	0.02	ND	ND	ND	0.02	150
		8.4	ND	ND	ND	ND	ND	ND	0.00	120
		3.2	ND	ND	ND	ND	ND	ND	0.00	4
32	17.5	4.2	ND	0.05	ND	ND	ND	ND	0.05	4
		8.4	ND	ND	ND	ND	ND	ND	0.00	800
36	19.5	6.1	ND	ND	ND	ND	ND	ND	0.00	4
		7.4	ND	500	320	ND	ND	ND	820	8000
38	20.5	6.4	ND	1700	360	ND	ND	ND	2020	8800
		8.4	ND	ND	ND	ND	ND	ND	0.00	20
40	21.5	3.2	ND	ND	0.01	ND	ND	ND	0.01	14
		7.4	ND	0.02	0.07	ND	ND	ND	0.09	700
44	23.5	2.3	ND	ND	ND	ND	ND	ND	0.00	15
		6.4	ND	ND	0.01	ND	ND	ND	0.01	180
48	25.5	6.4	ND	ND	0.01	ND	ND	ND	0.01	100
		9.2	ND	ND	ND	ND	ND	ND	0.00	2

TABLE 3

Berrie Division, Whittaker Corp., 317 Area Soil Characterization
Laboratory Analysis Trench 8

Lift	depth	Sample Node	Lab. Result (ppm)						Lab Total (ppm)	(GVA Reading)
			ACT	TET	TCE	SIX	TLN	MEK		
52	27.5	6.3	ND	ND	0.02	ND	0.01	ND	0.03	7
		7.3	ND	ND	0.01	ND	ND	ND	0.01	40
		7.3	ND	ND	ND	ND	0.01	ND	0.01	40
56	29.5	7.1	ND	ND	ND	ND	ND	ND	0.00	4
		8.2	ND	ND	0.01	ND	ND	ND	0.01	80
60	30.0	7.4	ND	ND	ND	25	ND	ND	935	8600
		8.1	ND	ND	ND	ND	ND	ND	0.00	0
		4.1	ND	ND	ND	ND	ND	ND	0.00	4
		3.1	ND	ND	ND	ND	ND	ND	0.00	1

Legend

ACT:	Acetone	MEK:	Methyl Ethyl Ketone
TET:	Tetrachloroethylene	SIX:	Styrene
TCE:	Trichloroethylene	ND:	No Detection
TLN:	Toluene		

TABLE 4

Bermite Division, Whitaker Corp., 317 Area Soil Characterization
Laboratory Analysis Trench C

Lift	Depth	Sample Node	Lab. Result (ppm)									Lab Total Field UVA	
			ACI	TCM	TEI	TCE	STR	TCN	CHL	III	MEK	(PFM)	(PFM)
1	2.0	4.1	ND	ND	0.03	ND	ND	ND	ND	ND	ND	0.03	25
2	2.5	4.2	ND	ND	0.24	ND	ND	ND	ND	ND	ND	0.24	40
3	3.0	4.2	ND	ND	0.09	ND	ND	ND	ND	ND	ND	0.09	100
4	3.5	5.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00	2
5	4.0	5.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00	5
6	4.5	4.2	ND	ND	0.13	ND	ND	ND	ND	ND	ND	0.13	10
7	5.0	4.3	ND	ND	0.39	ND	ND	0.01	ND	ND	ND	0.40	20
8	5.5	4.3	ND	ND	0.30	ND	ND	ND	ND	ND	ND	0.30	40
9	6.0	4.3	ND	ND	30	ND	ND	ND	ND	ND	ND	30	1100
10	6.5	4.3	ND	ND	0.17	ND	ND	ND	ND	ND	ND	0.17	40
11	7.0	4.3	ND	ND	9	ND	ND	ND	ND	ND	ND	9	1000
12	7.5	9.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00	20
13	8.0	4.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00	40
14	8.5	4.2	ND	ND	115	ND	ND	ND	ND	ND	ND	115	1000
15	9.0	4.3	ND	ND	325	ND	ND	ND	ND	ND	ND	325	300
16	9.5	9.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00	9
17	10.0	4.3	ND	ND	3	ND	ND	ND	ND	ND	ND	3	5000
18	10.5	4.3	ND	ND	2	ND	ND	ND	ND	ND	ND	2	2000
19	11.0	4.3	ND	ND	71	ND	ND	ND	ND	ND	ND	71	7500
20	11.5	6.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00	10
21	12.0	4.3	ND	ND	4	ND	ND	ND	ND	ND	ND	4	400
22	12.5	4.3	ND	ND	1	ND	ND	ND	ND	ND	ND	1	800
23	13.0	4.3	ND	ND	240	2	ND	ND	ND	ND	ND	242	2500
24	13.5	6.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00	5
25	14.0	4.3	ND	3	30	ND	ND	ND	ND	ND	ND	33	2500
26	14.5	4.3	10	ND	400	5	ND	ND	4	ND	ND	419	5000
27	15.0	4.3	13	ND	400	6	ND	ND	2	ND	ND	421	8000
28	15.5	6.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00	5
29	16.0	4.3	ND	ND	200	3	ND	ND	2	ND	ND	205	5200
30	16.5	4.3	18	ND	350	14	ND	ND	2	ND	ND	384	9500
31	17.0	4.3	8	ND	800	60	ND	ND	ND	2	ND	867	18000
32	17.5	7.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00	10
33	18.0	4.3	2	ND	ND	ND	ND	ND	ND	ND	2	4	9200
34	18.5	4.3	7	ND	200	4	ND	ND	ND	ND	2	212	5200
35	19.0	4.3	7	ND	125	2	ND	ND	ND	ND	2	126	8800
36	19.5	9.1	13	ND	16	ND	ND	ND	ND	ND	10	39	5
37	20.0	4.3	ND	ND	6	ND	ND	ND	ND	ND	ND	6	8000
		5.3	ND	0.02	0.07	0.01	ND	ND	ND	ND	1	0.74	5
41	22.0	4.3	2	ND	170	7	ND	ND	ND	ND	4	163	2000
		7.1	ND	0.02	0.05	0.01	ND	ND	ND	ND	0.3	0.35	5



Wenck Associates, Inc.

Consulting Engineers
(612) 475-0858

March 22, 1988

Mr. Alan Sorsher
Department of Health Services
Toxic Substances Control Division
107 S. Broadway, Room 7128
Los Angeles, CA 90012

Re: Soil Characterization at 317 Former Surface Impoundment
Bermite Division - Whittaker Corporation 22116 West
Soledad Canyon Road, Saugus, CA 91350

Dear Mr. Sorsher:

The Work Plan for Soil Characterization at the 317 Former Surface Impoundment contained in the approved RCRA Closure Plan Modifications, requires Bermite to provide EPA and DHS with proposed locations and construction information of at least five probes for organic vapor detection after completion of the soil removal and characterization. We have completed the initial trench excavation to the 30-foot depth and the progress report of this soil characterization will be forwarded to you in a few days.

As you will see in the progress report, while we have compiled a great deal of data concerning the lateral and vertical extent of the contamination, we have not yet fully characterized the extent of the volatile organic compound (VOC) contamination. Because the full extent is not yet known, the precise locations for the proposed probes cannot be determined with certainty. We therefore, propose to perform further characterization prior to installation of the probes. Definition of the horizontal and vertical extent of the VOC is not only important to the objectives of the Closure Plan and for proper placement of the probes around the perimeter of the soils containing VOC, but is also very important for defining the downgradient well locations for the groundwater monitoring plan.

We therefore propose to perform the additional characterization in a manner similar to the characterization completed to date. As can be seen on the attached Figure 1, two additional trenches labeled B and C are proposed to the north of the existing trench.

832 Twelve Oaks Center
15500 Wayzata Blvd.
Wayzata, MN 55391

Mr. Alan Sorsher
March 22, 1988
Page 2

Trenches B and C will each be approximately 150 feet long, 10 feet wide and approximately 30 feet deep. The soils will be removed in the same manner as in the trench completed to date. After removal of the top soils to create a level surface for excavation and sampling control, approximately 6-inch lifts will be removed at at time over the complete area.

The soils will be sampled in the field with a Foxboro OVA-88 portable organic vapor analyzer. The same method of field sampling in a 12-inch deep and 1/2-inch diameter borehole on a 25 foot centers will be utilized to characterize the VOC content of the soils and to define the perimeter of the soils containing VOC.

The soils will be removed from the excavation area and spread on adjacent areas located north and east of the 317 area. Attachment 1 of this letter is the results of analysis of metal concentrations in the soils at the background area at Bermite and the 317 area. These results show that the metal concentrations in the soils at the 317 area are not significantly greater than the background as determined by the procedures specified in the approved RCRA Closure Plan Modifications.

In addition to the trenches B and C, it is proposed that five, 8-inch borings be completed as indicated on Figure 1. These borings will be completed to a depth of no further OVA readings. Split spoon soil samples will be taken at 10-foot intervals to characterize the organic compounds and define the vertical extent of the VOC.

A permit to remove the soil containing VOC will be requested from the South Coast Air Quality Management District (SCAQMD). It is proposed to apply for this permit and to request an exemption to SCAQMD rule 1150(c)(4) and to request permission to discharge up to 200 lbs/day of VOC from the excavated soils. It is our belief that an exemption and permission will be granted.

When the horizontal extent of VOC has been determined by the additional excavation proposed above, details of the location and construction of the gas probes will be furnished to DHS and EPA. Also at that time, a system for removing any VOC remaining below the excavation may be represented to DHS and EPA for approval. The alternatives that are envisioned at this time for this additional VOC removal are given below.

Alternative number 1 is to design and install a VOC extraction system consisting of slotted PVC well casing installed to the depth of the vertical extent with a system of headers and laterals connected to a fan and carbon filter system to remove the organics from the airstream.

Mr. Alan Sorsher
March 22, 1988
Page 3

Alternative number 2 is to extract the VOC in-situ. A system to perform this removal is produced by Toxic Treatments USA, Inc. This system is presently operating at San Pedro Terminal Annex, Port of Los Angeles, California. We are currently evaluating the effectiveness of this method.


Alternative number 3 is to continue to excavate the VOC containing soils from the 317 area. This method would be similar to the method proposed above for trenches B and C.

The details of the alternatives, their design, implementation and effectiveness cannot be known until further characterization of the soils at this area is complete.

Please review the above proposal and do not hesitate to call with any questions you may have. We would like to move forward with this characterization work beginning next week. Your attention to this matter is greatly appreciated.

Sincerely,

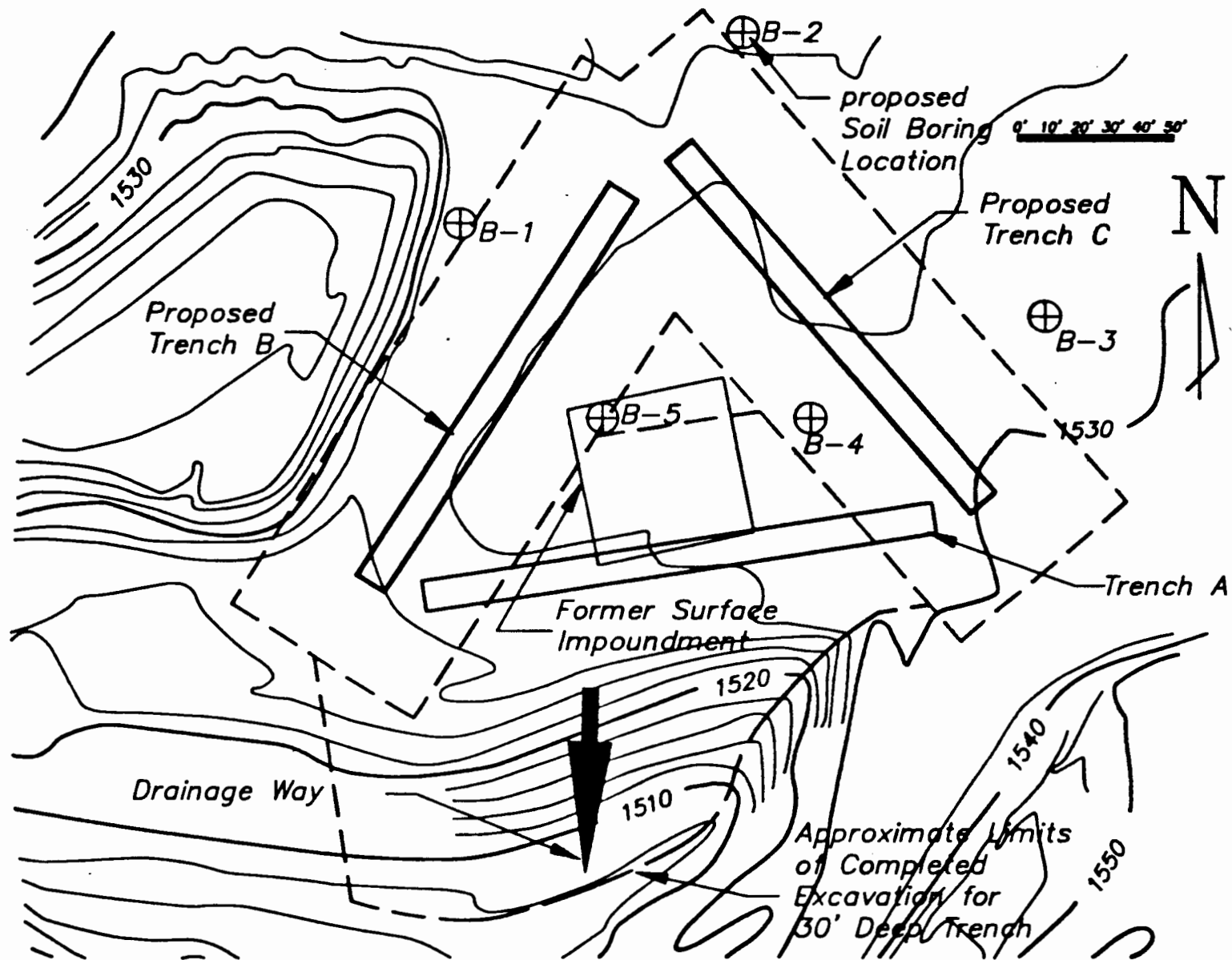
WENCK ASSOCIATES, INC.



Norman C. Wenck, P.E.
President

cc: Michael Fernandez, EPA
Larry Peterson, SCAQMD
Elizabeth Lafferty, DHS

:jr



BERMITE DIVISION - WHITTAKER CORPORATION

Proposed 317 Soil Characterization Plan



Wenck Associates, Inc.

Consulting Engineers

Twelve Oaks Center
15500 Wayzata Blvd.
Wayzata, MN 55391

MAR 88

Fig. 1

ATTACHMENT 1

METAL ANALYSIS AT BACKGROUND

AREA AND 317 AREA

ANALYSIS RESULTS FROM
SOIL SAMPLING AT
RCRA UNITS

TABLE 2

File = BACKGSCIL

BACKGROUND AREA METAL CONCENTRATIONS

All Values Are ug/kg (ppm)

SAMPLE I.D.	SAMPLE DEPTH	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Copper	Flouride	Lead	Magnesium	Mercury	Nickel	Selenium	Silver	Thallium
B6A-2323-1	0.0-0.5'	ND	4.0	50	ND	ND	ND	5100	ND	ND	ND	4.0	1400	ND	ND	ND	ND	ND
B6A-2323-2	0.5-1.0'	ND	3.0	ND	ND	ND	ND	3100	ND	ND	340	ND	1100	ND	ND	ND	ND	ND
B6A-2323-3	1.0-2.0'	ND	5.0	76	ND	7.0	ND	3100	ND	ND	ND	ND	3300	ND	20	ND	ND	ND
B6A-2323-4	2.0-3.0'	ND	ND	ND	ND	ND	ND	1500	ND	ND	ND	ND	960	ND	ND	ND	ND	ND
B6A-2323-5	3.0-4.0'	ND	4.0	ND	ND	ND	ND	1800	ND	ND	170	ND	1200	ND	ND	ND	ND	ND
B6A-2323-6	4.0-5.0'	ND	ND	ND	ND	ND	ND	1600	ND	ND	180	ND	1200	ND	ND	ND	ND	ND
B6A-2822-1	0.0-0.5'	ND	5.0	53	ND	6.0	ND	6200	ND	ND	420	4.0	1700	ND	ND	ND	ND	ND
B6A-2822-2	0.5-1.0'	ND	4.0	ND	ND	ND	ND	4300	ND	ND	180	12	1400	ND	ND	ND	ND	ND
B6A-2822-3	1.0-2.0'	ND	4.0	ND	ND	ND	ND	2200	ND	ND	130	ND	1700	ND	ND	ND	ND	ND
B6A-2822-4	2.0-3.0'	ND	ND	ND	ND	ND	ND	2100	ND	ND	160	ND	1100	ND	ND	ND	ND	ND
B6A-2822-5	3.0-4.0'	ND	5.0	ND	ND	ND	ND	1700	ND	ND	160	ND	1300	ND	ND	ND	ND	ND
B6A-2822-6	4.0-5.0'	ND	6.0	ND	ND	ND	ND	2000	ND	ND	110	ND	1600	ND	ND	ND	ND	ND
B6A-0115-1	0.0-0.5'	ND	5.0	52	ND	6.0	ND	4500	ND	23	390	4.0	1500	ND	ND	ND	ND	ND
B6A-0115-2	0.5-1.0'	ND	4.0	64	ND	7.4	ND	5700	ND	ND	180	4.0	1900	ND	ND	ND	ND	ND
B6A-0115-3	1.0-2.0'	ND	4.0	ND	ND	8.2	ND	5300	ND	14	380	4.0	2100	ND	ND	ND	ND	ND
B6A-0115-4	2.0-3.0'	ND	5.0	56	ND	9.0	ND	3400	ND	ND	ND	4.0	2300	ND	ND	ND	ND	ND
B6A-0115-5	3.0-4.0'	ND	4.0	ND	ND	ND	ND	2100	ND	ND	160	4.0	1100	ND	ND	ND	ND	ND
B6A-0115-6	4.0-5.0'	ND	6.0	ND	ND	ND	ND	1800	ND	ND	120	ND	1200	ND	ND	ND	ND	ND
B6A-1223-1	0.0-0.5'	ND	5.0	ND	ND	6.0	ND	3600	ND	ND	ND	ND	1600	ND	ND	ND	ND	ND
B6A-1223-2	0.5-1.0'	ND	6.0	ND	ND	6.0	ND	2100	ND	ND	270	ND	1400	ND	ND	ND	ND	ND
B6A-1223-3	1.0-2.0'	ND	6.0	ND	ND	ND	ND	1600	ND	ND	ND	ND	1500	ND	ND	ND	ND	ND
B6A-1223-4	2.0-3.0'	ND	5.0	ND	ND	ND	ND	1500	ND	ND	260	ND	1200	ND	ND	ND	ND	ND
B6A-1223-5	3.0-4.0'	ND	5.0	ND	ND	ND	ND	1900	ND	ND	ND	ND	1400	ND	ND	ND	ND	ND
B6A-1223-6	4.0-5.0'	ND	6.0	ND	ND	ND	ND	2000	ND	ND	ND	ND	1700	ND	ND	ND	ND	ND
Detection Limit		10	3.0	50	0.50	5.0	0.50	1000	50	10	100	3.0	500	0.10	10	0.50	3.0	5.0
Average Concentration		10	4.6	52	0.50	5.7	0.50	2925	50	11	184	3.7	1536	0.10	10	0.50	3.0	5.0
Upper Confidence Limit		10	4.9	54	0.50	6.0	0.50	3445	50	12	220	4.3	1710	0.10	11	0.50	3.0	5.0
Lower Confidence Limit		10	4.2	50	0.50	5.3	0.50	2405	50	10	148	3.0	1361	0.10	9.7	0.50	3.0	5.0
Standard Deviation		0.0	1.0	5.9	0.00	1.1	0.00	1487	0	2.7	103	1.8	499	0.00	2.0	0.00	0.0	0.0
Variance		0.0	1.0	35	0.00	1.3	0.00	2210652	0	7.5	10651	3.4	248730	0.00	4.2	0.00	0.0	0.0
Coefficient of Variation		0.0	22	11	0.00	20	0.00	51	0	26	56	50	32	0.00	20	0.00	0.0	0.0
Maximum Value		ND	6.0	76	ND	9.0	ND	6200	50	23	420	12	3300	ND	20	ND	ND	ND
Total Number of Samples		24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24

NOTE:

- 1) All No Detection Values (ND) Have Been Given A Value
Equal To The Detection Limit For Purposes Of Calculation
- 2) t = 1.714 in calculation of confidence limits

ANALYSIS RESULTS FROM
SOIL SAMPLING AT
RCRA UNITS

TABLE 3

FILE = 317DATAF

METAL CONCENTRATIONS AT 317 AREA, 0 TO 2 FEET
All Values Are mg/kg (ppm)

SAMPLE I.D.	SAMPLE DEPTH	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
317-3369-1	0.0-0.5'	4.0	ND	ND	ND	6.0	ND	ND	ND
317-3369-2	0.5-1.0'	ND	ND	ND	ND	4.0	ND	ND	ND
317-3369-3	1.5-2.0'	5.0	ND	ND	ND	6.0	ND	ND	ND
317-3752-1	0.0-0.5'	5.0	ND	ND	ND	4.0	ND	ND	ND
317-3752-2	0.5-1.0'	4.0	ND	ND	ND	4.0	ND	ND	ND
317-3752-3	1.5-2.0'	3.0	ND	ND	ND	4.0	ND	ND	ND
317-0745-1	0.0-0.5'	4.0	ND	ND	ND	4.0	ND	ND	ND
317-0745-2	0.5-1.0'	3.0	ND	ND	ND	4.0	ND	ND	ND
317-0745-3	1.5-2.0'	ND	ND	ND	ND	ND	ND	ND	ND
317-6089-1	0.0-0.5'	4.0	ND	ND	ND	4.0	ND	ND	ND
317-6089-2	0.5-1.0'	ND	ND	ND	ND	ND	ND	ND	ND
317-6089-3	1.5-2.0'	3.0	ND	ND	ND	ND	ND	ND	ND
317-2092-1	0.0-0.5'	3.0	ND	ND	ND	4.0	ND	ND	ND
317-2092-2	0.5-1.0'	4.0	58	ND	ND	4.0	ND	ND	ND
317-2092-3	1.5-2.0'	ND	ND	ND	ND	4.0	ND	ND	ND
317-1397-1	0.0-0.5'	ND	ND	ND	ND	4.0	ND	ND	ND
317-1397-2	0.5-1.0'	5.0	ND	ND	ND	4.0	ND	ND	ND
317-1397-3	1.5-2.0'	3.0	ND	ND	ND	6.0	ND	ND	ND
317-6331-1	0.0-0.5'	4.0	54	ND	ND	4.0	ND	ND	ND
317-6331-2	0.5-1.0'	4.0	ND	ND	ND	ND	ND	ND	ND
317-6331-3	1.5-2.0'	ND	ND	ND	ND	4.0	ND	ND	ND
317-7573-1	0.0-0.5'	3.0	54	ND	ND	4.0	ND	ND	ND
317-7573-2	0.5-1.0'	4.0	ND	ND	ND	4.0	ND	ND	ND
317-7573-3	1.5-2.0'	3.0	ND	0.60	ND	4.0	ND	ND	ND
Detection Limit		3.0	50	0.50	50	3.0	0.10	0.50	3.0
Sample Average Concentration		3.6	51	0.50	50	4.1	0.10	0.50	3.0
Upper Confidence Limit		3.8	51	0.50	50	4.4	0.10	0.50	3.0
Lower Confidence Limit		3.3	50	0.50	50	3.8	0.10	0.50	3.0
Sample Standard Deviation		0.7	1.9	--	--	0.8	--	--	--
Sample Variance		0.5	3.7	--	--	0.7	--	--	--
Coefficient of Variation		20.0	3.8	--	--	20	--	--	--
Maximum Value		5.0	58	0.60	ND	6.0	ND	ND	ND
Total Number of Samples		24	24	24	24	24	24	24	24

ANALYSIS RESULTS FROM
SOIL SAMPLING AT
RCRA UNITS

TABLE 3

FILE = 317DATAF

METAL CONCENTRATIONS AT 317 AREA, 0 TO 2 FEET
All Values Are mg/kg (ppm)

SAMPLE I.D.	SAMPLE DEPTH	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
Background Average		4.6	52	0.50	50	3.7	0.10	0.50	3.0
Background Variance		1.0	35	0.00	0	3.4	0.00	0.00	0.0
t* = test statistic		-3.9	-1.2			1.0			
t'		1.7	1.7			1.7			

NOTE:

All No Detection (ND) values have been
given a value equal to the detection limit
for purposes of calculation

Std Dev. and Var. are based on n - 1

$t^* = (\text{sample avg.} - \text{background avg.}) / \sqrt{(\text{sample var.} / \# \text{ samples}) + \text{background var.} / \# \text{ samples}}$

If $t^* > t'$ then sample avg. \neq background avg.

ANALYSIS RESULTS FROM
SOIL SAMPLING AT
RCRA UNITS

TABLE 4

File = 317met16

METAL CONCENTRATIONS AT 317 AREA, 16 TO 18 FEET
All Values Are mg/kg (ppm)

SAMPLE I.D.	SAMPLE DEPTH	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
317-3369-4	16.0-16.5'	ND	52	ND	ND	ND	ND	ND	ND
317-3369-5	16.5-17.0'	ND	59	ND	22	ND	ND	ND	ND
317-3369-6	17.5-18.0'	ND	73	ND	250	ND	ND	ND	ND
317-3752-4	16.0-16.5'	ND	30	ND	7	ND	ND	ND	0.43
317-3752-5	16.5-17.0'	ND	43	ND	6	ND	ND	ND	ND
317-3752-6	17.5-18.0'	ND	39	ND	ND	ND	ND	ND	ND
317-0745-4	16.0-16.5'	ND	47	ND	ND	ND	ND	ND	ND
317-0745-5	16.5-17.0'	ND	36	ND	ND	ND	ND	ND	ND
317-0745-6	17.5-18.0'	ND	40	ND	ND	ND	ND	ND	ND
317-6089-4	16.0-16.5'	ND	69	ND	ND	ND	ND	ND	ND
317-6089-5	16.5-17.0'	ND	32	ND	7	ND	ND	ND	ND
317-6089-6	17.5-18.0'	ND	ND	ND	ND	ND	ND	ND	ND
317-2092-4	16.0-16.5'	ND	62	ND	6	ND	ND	ND	ND
317-2092-5	16.5-17.0'	ND	55	ND	6	ND	ND	ND	1.7
317-2092-6	17.5-18.0'	ND	66	ND	ND	ND	ND	ND	ND
317-1397-4	16.0-16.5'	ND	33	ND	6	ND	ND	ND	ND
317-1397-5	16.5-17.0'	ND	53	ND	8	ND	ND	ND	ND
317-1397-6	17.5-18.0'	ND	60	ND	5	ND	ND	ND	ND
317-6331-4	16.0-16.5'	ND	57	ND	ND	12	ND	ND	ND
317-6331-5	16.5-17.0'	ND	67	ND	ND	9.0	ND	ND	0.45
317-6331-6	17.5-18.0'	ND	78	ND	ND	ND	ND	ND	ND
317-7573-4	16.0-16.5'	ND	76	ND	8	ND	ND	ND	ND
317-7573-5	16.5-17.0'	ND	32	ND	7	ND	ND	ND	ND
317-7573-6	17.5-18.0'	ND	63	ND	6	ND	ND	ND	ND
Detection Limit		2.0	20	2.0	5	5.0	0.20	1.0	0.40
Sample Average Concentration		2.0	53	2.0	17	3.6	0.20	1.0	0.46
Upper Confidence Limit		2.0	58	2.0	34	4.3	0.20	1.0	0.55
Lower Confidence Limit		2.0	48	2.0	-0.8	2.9	0.20	1.0	0.37
Sample Standard Deviation		--	15	--	50	2.1	--	--	0.26
Sample Variance		--	221	--	2483	4.3	--	--	0.07
Coefficient of Variation		--	28	--	300	58	--	--	57
Maximum Value		ND	78	ND	250	12	ND	ND	1.7
Total Number of Samples		24	24	24	24	24	24	24	24

18-Mar-88

WENCK ASSOCIATES, INC.

ANALYSIS RESULTS FROM
SOIL SAMPLING AT
RCRA UNITS

TABLE 4

File = 317net16

METAL CONCENTRATIONS AT 317 AREA, 16 TO 18 FEET
All Values Are mg/kg (ppm)

SAMPLE I.D.	SAMPLE DEPTH	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
Background Average		4.6	52	0.50	50	3.7	0.10	0.50	3.0
Background Variance		1.0	35	0.00	0	3.4	0.00	0.00	0.0
t* = test statistic		0.3			-3.3	-0.1			-48
t'		1.7			1.7	1.7			1.7

Note:

All No Detection Values (ND) Have Been Given A Value
Equal To The Detection Limit For Purposes Of Calculation

Std Dev. and Var. are based on n -1

$$t* = (\text{sample avg.} - \text{background avg.}) / \sqrt{(\text{sample var.} / \# \text{ samples}) + \text{background var.} / \# \text{ samples}}$$

If $t* > t'$ then sample avg. \neq background avg.

APPENDIX B
CHAIN-OF-CUSTODY FORMS



Wenck Associates, Inc.
832 Twelve Oaks Center
15500 Wayzata Blvd.
Wayzata, MN 55391

CHAIN OF CUSTODY RECORD

FIELD COORDINATOR

NORM WENCK

PROJ. NO.		PROJECT NAME					NUMBER OF CONTAINERS								REMARKS
		BERNITE - WHITTAKER													
SAMPLERS (Signature)		Gregory W. Smith													
STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION										
1	9/7	0720		X	Node 3B	1									
2	9/7	0730		X	Node 4A	1									
3	9/8	1045		X	Node 3B	1									
4	9/8	1055		X	Node 1A	1									
Relinquished by: (Signature)		Date	Time	Received by: (Signature)		Relinquished by: (Signature)		Date	Time	Received by: (Signature)					
Gregory W. Smith		9/9/88	10:20	MARTIN				9/9	15:20						
Relinquished by: (Signature)		Date	Time	Received by: (Signature)		Relinquished by: (Signature)		Date	Time	Received by: (Signature)					
Relinquished by: (Signature)		Date	Time	Received for Laboratory by: (Signature)		Date	Time	Remarks							

Nº 1



Wenck Associates, Inc.
832 Twelve Oaks Center
15500 Wayzata Blvd.
Wayzata, MN 55391

CHAIN OF CUSTODY RECORD

FIELD COORDINATOR

Chris Thompson

PROJ. NO.		PROJECT NAME					NUMBER OF CONTAINERS	514 8240							REMARKS
85-01.4		Barnite													
SAMPLERS (Signature)															
STA NO.	DATE	TIME	COMP	GRAB	STATION LOCATION										
D-B1-10	9/12	1625		✓	Node B1 10' depth 1		1 sleeve	✓						513-1	
D-A1-10	9/12	1630		✓	Node A1 10' depth 2		1 sleeve	✓						-2	
D-B2-12	9/13	1330		✓	Node B2 12' depth 3		1 sleeve	✓						-3	
D-A1-12	9/13	1340		✓	Node A1 12' depth 4		1 sleeve	✓						-4	
D-B2-14	9/14	1130		✓	Node B2 - 14' depth 5		1 sleeve	✓						-5	
D-B2-14	9/14	1130		✓	Node B2 14' depth 6		1 sleeve	✓						-6	
D-A8-14	9/14	1130		✓	Node A8 14' depth 7		1 sleeve	✓						-7	
Relinquished by: (Signature)		Date	Time	Received by: (Signature)		Relinquished by: (Signature)		Date	Time	Received by: (Signature)					
		9/14/88	1307					9/14/88	1354						
Relinquished by: (Signature)		Date	Time	Received by: (Signature)		Relinquished by: (Signature)		Date	Time	Received by: (Signature)					
								9/14/88	1558						
Relinquished by: (Signature)		Date	Time	Received for Laboratory by: (Signature)		Date	Time	Remarks							

Nº



Wenck Associates, Inc.
832 Twelve Oaks Center
15500 Wayzata Blvd.
Wayzata, MN 55391

CHAIN OF CUSTODY RECORD

FIELD COORDINATOR

Chris Thompson

PROJ. NO.		PROJECT NAME					NUMBER OF CONTAINERS	EPA 8240								REMARKS
85-01.4		Bernite														
SAMPLERS (Signature)																
STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION											
D-B3-16	9/14	1615		✓	Node B3 16' depth	1 sleeve	✓									
D-A7-16	9/14	1615		✓	Node A7 16' depth	1 sleeve	✓									
D-B2-18	9/16	0800		✓	Node B2 18' depth	1 sleeve	✓									
D-D4-18	9/16	0800		✓	Node D4 18' depth	1 sleeve	✓									
D-B2-20	9/16	1130		✓	Node B2 20' depth	1 sleeve	✓									
D-A7-20	9/16	1130		✓	Node A7 20' depth	1 sleeve	✓									
Relinquished by: (Signature)		Date	Time	Received by: (Signature)		Relinquished by: (Signature)		Date	Time	Received by: (Signature)						
		9/16/88	1145					9/16/88	1230							
Relinquished by: (Signature)		Date	Time	Received by: (Signature)		Relinquished by: (Signature)		Date	Time	Received by: (Signature)						
Relinquished by: (Signature)		Date	Time	Received for Laboratory by: (Signature)		Date	Time	Remarks								

APPENDIX C
TRENCH D SAMPLE LABORATORY REPORTS

FGL

FGL

ANALYTICAL CHEMISTS

VOLATILE ORGANICS IN SOIL (GC/MS)
EPA METHOD 8240September 9, 1988
Lab No. 5388-1RECEIVED BY
WENCK ASSOCIATES INC.Bermite Division of Whittaker
22116 West Soledad Canyon Road
Saugus, California 91350

SEP 16 1988

Sample Description: Lift Trench D-1-C-1

Sampled by: NW

Date Sampled: August 31, 1988

Date Received: September 2, 1988

Date Analyzed: September 6, 1988

REPORT OF ANALYSIS

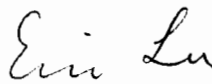
Compound	Detection Limit		Compound	Detection Limit	
	ug/kg	ug/kg		ug/kg	ug/kg
Acetone	ND	50.0	1,1-Dichloroethene	ND	5.0
Benzene	ND	5.0	trans-1,2-Dichloroethene	ND	5.0
Bromodichloromethane	ND	5.0	1,2-Dichloropropane	ND	5.0
Bromoform	ND	5.0	cis-1,3-Dichloropropene	ND	5.0
Bromomethane	ND	10.0	trans-1,3-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0	Ethyl Benzene	ND	5.0
Chlorobenzene	ND	5.0	Methyl Ethyl Ketone	ND	50.0
Chloroethane	ND	10.0	Methylene Chloride	ND	5.0
Chloroform	ND	5.0	1,1,2,2-Tetrachloroethane	ND	5.0
Chloromethane	ND	10.0	Tetrachloroethene	230	5.0
Dibromochloromethane	ND	5.0	Toluene	ND	5.0
1,2-Dichlorobenzene	ND	5.0	1,1,1-Trichloroethane	ND	5.0
1,3-Dichlorobenzene	ND	5.0	1,1,2-Trichloroethane	ND	5.0
1,4-Dichlorobenzene	ND	5.0	Trichloroethene	47	5.0
1,1-Dichloroethane	ND	5.0	Trichlorofluoromethane	ND	5.0
1,2-Dichloroethane	ND	5.0	Vinyl Chloride	ND	10.0
			Xylenes	ND	5.0

ND = Not detected at or above the
concentration of the detection limit.

ug/kg = ppb

Very truly yours,
FGL ENVIRONMENTAL, INC.

J.G. Patel, M.S.
Environmental Chemist


Eric Lu, Ph.D.
Environmental Chemist

JP/EL:me1

FGL

ANALYTICAL CHEMISTS

VOLATILE ORGANICS IN SOIL (GC/MS)
EPA METHOD 8240

September 9, 1988

Lab No. 5388-2

Bermite Division of Whittaker
22116 West Soledad Canyon Road
Saugus, California 91350

Sample Description: Lift Trench D-1-B-1

Sampled by: NW

Date Sampled: August 31, 1988

Date Received: September 2, 1988

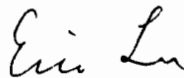
Date Analyzed: September 6, 1988

REPORT OF ANALYSIS

Compound	Detection Limit		Compound	Detection Limit	
	ug/kg	ug/kg		ug/kg	ug/kg
Acetone	ND	50.0	1,1-Dichloroethene	ND	5.0
Benzene	ND	5.0	trans-1,2-Dichloroethene	ND	5.0
Bromodichloromethane	ND	5.0	1,2-Dichloropropane	ND	5.0
Bromoform	ND	5.0	cis-1,3-Dichloropropene	ND	5.0
Bromomethane	ND	10.0	trans-1,3-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0	Ethyl Benzene	ND	5.0
Chlorobenzene	ND	5.0	Methyl Ethyl Ketone	ND	50.0
Chloroethane	ND	10.0	Methylene Chloride	ND	5.0
Chloroform	ND	5.0	1,1,2,2-Tetrachloroethane	ND	5.0
Chloromethane	ND	10.0	Tetrachloroethene	ND	5.0
Dibromochloromethane	ND	5.0	Toluene	17	5.0
1,2-Dichlorobenzene	ND	5.0	1,1,1-Trichloroethane	ND	5.0
1,3-Dichlorobenzene	ND	5.0	1,1,2-Trichloroethane	ND	5.0
1,4-Dichlorobenzene	ND	5.0	Trichloroethene	ND	5.0
1,1-Dichloroethane	ND	5.0	Trichlorofluoromethane	ND	5.0
1,2-Dichloroethane	ND	5.0	Vinyl Chloride	ND	10.0
			Xylenes	ND	5.0

ND = Not detected at or above the
concentration of the detection limit.

ug/kg = ppb

Very truly yours,
FGL ENVIRONMENTAL, INC.J.G. Patel, M.S.
Environmental ChemistEric Lu, Ph.D.
Environmental Chemist

JP/EL:me1

FCI

ANALYTICAL CHEMISTS

VOLATILE ORGANICS IN SOIL (GC/MS) EPA METHOD 8240

September 9, 1988
Lab No. 5388-3

Bermite Division of Whittaker
22116 West Soledad Canyon Road
Saugus, California 91350

Sample Description: Lift Trench D-2-B-2

Sampled by: NW

Date Sampled: September 2, 1988

Date Received: September 2, 1988

Date Analyzed: September 6, 1988

REPORT OF ANALYSIS

Compound	Detection Limit		Compound	Detection Limit	
	ug/kg	ug/kg		ug/kg	ug/kg
Acetone	ND	1250	1,1-Dichloroethene	ND	125
Benzene	ND	125	trans-1,2-Dichloroethene	ND	125
Bromodichloromethane	ND	125	1,2-Dichloropropane	ND	125
Bromoform	ND	125	cis-1,3-Dichloropropene	ND	125
Bromomethane	ND	250	trans-1,3-Dichloropropene	ND	125
Carbon Tetrachloride	ND	125	Ethyl Benzene	ND	125
Chlorobenzene	ND	125	Methyl Ethyl Ketone	ND	1250
Chloroethane	ND	250	Methylene Chloride	ND	125
Chloroform	ND	125	1,1,2,2-Tetrachloroethane	ND	125
Chloromethane	ND	250	Tetrachloroethene	1400	125
Dibromochloromethane	ND	125	Toluene	ND	125
1,2-Dichlorobenzene	ND	125	1,1,1-Trichloroethane	ND	125
1,3-Dichlorobenzene	ND	125	1,1,2-Trichloroethane	ND	125
1,4-Dichlorobenzene	ND	125	Trichloroethene	500	125
1,1-Dichloroethane	ND	125	Trichlorofluoromethane	ND	125
1,2-Dichloroethane	ND	125	Vinyl Chloride	ND	250
			Xylenes	ND	125

ND = Not detected at or above the
concentration of the detection limit.

ug/kg = ppb

Very truly yours,
FGL ENVIRONMENTAL, INC.

JG Patel

J.G. Patel, M.S.
Environmental Chemist

Eric Lu

Eric Lu, Ph.D.
Environmental Chemist

JP/EL:me1

FCL

ANALYTICAL CHEMISTS

VOLATILE ORGANICS IN SOIL (GC/MS)
EPA METHOD 8240

September 9, 1988

Lab No. 5388-4

Bermite Division of Whittaker
22116 West Soledad Canyon Road
Saugus, California 91350

Sample Description: Lift Trench D-4-C-2

Sampled by: NW

Date Sampled: September 2, 1988

Date Received: September 2, 1988

Date Analyzed: September 6, 1988

REPORT OF ANALYSIS

Compound	Detection Limit		Compound	Detection Limit	
	ug/kg	ug/kg		ug/kg	ug/kg
Acetone	ND	50.0	1,1-Dichloroethene	ND	5.0
Benzene	ND	5.0	trans-1,2-Dichloroethene	ND	5.0
Bromodichloromethane	ND	5.0	1,2-Dichloropropane	ND	5.0
Bromoform	ND	5.0	cis-1,3-Dichloropropene	ND	5.0
Bromomethane	ND	10.0	trans-1,3-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0	Ethyl Benzene	ND	5.0
Chlorobenzene	ND	5.0	Methyl Ethyl Ketone	ND	50.0
Chloroethane	ND	10.0	Methylene Chloride	ND	5.0
Chloroform	ND	5.0	1,1,2,2-Tetrachloroethane	ND	5.0
Chloromethane	ND	10.0	Tetrachloroethene	ND	5.0
Dibromochloromethane	ND	5.0	Toluene	5.4	5.0
1,2-Dichlorobenzene	ND	5.0	1,1,1-Trichloroethane	ND	5.0
1,3-Dichlorobenzene	ND	5.0	1,1,2-Trichloroethane	ND	5.0
1,4-Dichlorobenzene	ND	5.0	Trichloroethene	ND	5.0
1,1-Dichloroethane	ND	5.0	Trichlorofluoromethane	ND	5.0
1,2-Dichloroethane	ND	5.0	Vinyl Chloride	ND	10.0
			Xylenes	ND	5.0

ND = Not detected at or above the
concentration of the detection limit.

ug/kg = ppb

Very truly yours,
FGL ENVIRONMENTAL, INC.J.G. Patel, M.S.
Environmental ChemistEric Lu, Ph.D.
Environmental Chemist

JP/EL:me1

FGL ENVIRONMENTAL

ANALYTICAL CHEMISTS

VOLATILE ORGANICS IN SOIL (GC/MS)
EPA METHOD 8240

September 15, 1988
Lab No. 5471-3

Bermite Division of Whittaker
22116 West Soledad Canyon Road
Saugus, California 91350

Sample Description: Node 3B
Sampled by: G. Smith
Date Sampled: September 8, 1988
Date Received: September 9, 1988

Date Analyzed: September 13, 1988

REPORT OF ANALYSIS

Compound	Detection Limit		Compound	Detection Limit	
	ug/kg	ug/kg		ug/kg	ug/kg
Acetone	ND	125	1,1-Dichloroethene	ND	13
Benzene	ND	13	trans-1,2-Dichloroethene	ND	13
Bromodichloromethane	ND	13	1,2-Dichloropropane	ND	13
Bromoform	ND	13	cis-1,3-Dichloropropene	ND	13
Bromomethane	ND	25	trans-1,3-Dichloropropene	ND	13
Carbon Tetrachloride	ND	13	Ethyl Benzene	ND	13
Chlorobenzene	ND	13	Methyl Ethyl Ketone	ND	125
Chloroethane	ND	25	Methylene Chloride	ND	13
Chloroform	ND	13	1,1,2,2-Tetrachloroethane	ND	13
Chloromethane	ND	25	Tetrachloroethene	52	13
Dibromochloromethane	ND	13	Toluene	ND	13
1,2-Dichlorobenzene	ND	13	1,1,1-Trichloroethane	ND	13
1,3-Dichlorobenzene	ND	13	1,1,2-Trichloroethane	ND	13
1,4-Dichlorobenzene	ND	13	Trichloroethene	56	13
1,1-Dichloroethane	ND	13	Trichlorofluoromethane	ND	13
1,2-Dichloroethane	ND	13	Vinyl Chloride	ND	25
			Xylenes	ND	13

ND = Not detected at or above the
concentration of the detection limit.

ug/kg = ppb

Very truly yours,
FGL ENVIRONMENTAL, INC.



J.G. Patel, M.S.
Environmental Chemist



Eric Lu, Ph.D.
Environmental Chemist

JP/EL:mel

FGL ENVIRONMENTAL

ANALYTICAL CHEMISTS

VOLATILE ORGANICS IN SOIL (GC/MS)
EPA METHOD 8240

September 15, 1988
Lab No. 5471-2

Bermite Division of Whittaker
22116 West Soledad Canyon Road
Saugus, California 91350

Sample Description: Node 4A
Sampled by: G. Smith
Date Sampled: September 7, 1988
Date Received: September 9, 1988

Date Analyzed: September 13, 1988

REPORT OF ANALYSIS


Detection Limit			Detection Limit		
Compound	ug/kg	ug/kg	Compound	ug/kg	ug/kg
Acetone	75	50.0	1,1-Dichloroethene	ND	5.0
Benzene	ND	5.0	trans-1,2-Dichloroethene	ND	5.0
Bromodichloromethane	ND	5.0	1,2-Dichloropropane	ND	5.0
Bromoform	ND	5.0	cis-1,3-Dichloropropene	ND	5.0
Bromomethane	ND	10.0	trans-1,3-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0	Ethyl Benzene	ND	5.0
Chlorobenzene	ND	5.0	Methyl Ethyl Ketone	ND	50.0
Chloroethane	ND	10.0	Methylene Chloride	ND	5.0
Chloroform	ND	5.0	1,1,2,2-Tetrachloroethane	ND	5.0
Chloromethane	ND	10.0	Tetrachloroethene	ND	5.0
Dibromochloromethane	ND	5.0	Toluene	8	5.0
1,2-Dichlorobenzene	ND	5.0	1,1,1-Trichloroethane	ND	5.0
1,3-Dichlorobenzene	ND	5.0	1,1,2-Trichloroethane	ND	5.0
1,4-Dichlorobenzene	ND	5.0	Trichloroethene	ND	5.0
1,1-Dichloroethane	ND	5.0	Trichlorofluoromethane	ND	5.0
1,2-Dichloroethane	ND	5.0	Vinyl Chloride	ND	10.0
			Xylenes	ND	5.0

ND = Not detected at or above the
concentration of the detection limit.

ug/kg = ppb

Very truly yours,
FGL ENVIRONMENTAL, INC.


J.G. Patel, M.S.
Environmental Chemist


Eric Lu, Ph.D.
Environmental Chemist

JP/EL:me1

FGL ENVIRONMENTAL

ANALYTICAL CHEMISTS

VOLATILE ORGANICS IN SOIL (GC/MS)
EPA METHOD 8240

September 15, 1988
Lab No. 5471-1

RECEIVED BY
WENCK ASSOCIATES INC

Bermite Division of Whittaker
22116 West Soledad Canyon Road
Saugus, California 91350

SEP 19 1988

Sample Description: Node 3B
Sampled by: G. Smith
Date Sampled: September 7, 1988
Date Received: September 9, 1988

Date Analyzed: September 13, 1988

REPORT OF ANALYSIS

Detection Limit			Detection Limit		
Compound	ug/kg	ug/kg	Compound	ug/kg	ug/kg
Acetone	ND	1250	1,1-Dichloroethene	ND	125
Benzene	ND	125	trans-1,2-Dichloroethene	ND	125
Bromodichloromethane	ND	125	1,2-Dichloropropane	ND	125
Bromoform	ND	125	cis-1,3-Dichloropropene	ND	125
Bromomethane	ND	250	trans-1,3-Dichloropropene	ND	125
Carbon Tetrachloride	ND	125	Ethyl Benzene	ND	125
Chlorobenzene	ND	125	Methyl Ethyl Ketone	ND	1250
Chloroethane	ND	250	Methylene Chloride	ND	125
Chloroform	ND	125	1,1,2,2-Tetrachloroethane	ND	125
Chloromethane	ND	250	Tetrachloroethene	2100	125
Dibromochloromethane	ND	125	Toluene	ND	125
1,2-Dichlorobenzene	ND	125	1,1,1-Trichloroethane	ND	125
1,3-Dichlorobenzene	ND	125	1,1,2-Trichloroethane	ND	125
1,4-Dichlorobenzene	ND	125	Trichloroethene	655	125
1,1-Dichloroethane	ND	125	Trichlorofluoromethane	ND	125
1,2-Dichloroethane	ND	125	Vinyl Chloride	ND	250
			Xylenes	ND	125

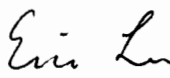
ND = Not detected at or above the
concentration of the detection limit.

ug/kg = ppb

Very truly yours,
FGL ENVIRONMENTAL, INC.



J.G. Patel, M.S.
Environmental Chemist
JP/EL:me1



Eric Lu, Ph.D.
Environmental Chemist

FGL ENVIRONMENTAL

ANALYTICAL CHEMISTS

VOLATILE ORGANICS IN SOIL (GC/MS)
EPA METHOD 8240

September 15, 1988
Lab No. 5471-4

Bermite Division of Whittaker
22116 West Soledad Canyon Road
Saugus, California 91350

Sample Description: Node 1A
Sampled by: G. Smith
Date Sampled: September 8, 1988
Date Received: September 9, 1988

Date Analyzed: September 13, 1988

REPORT OF ANALYSIS


Detection Limit			Detection Limit		
Compound	ug/kg	ug/kg	Compound	ug/kg	ug/kg
Acetone	130	50.0	1,1-Dichloroethene	ND	5.0
Benzene	ND	5.0	trans-1,2-Dichloroethene	ND	5.0
Bromodichloromethane	ND	5.0	1,2-Dichloropropane	ND	5.0
Bromoform	ND	5.0	cis-1,3-Dichloropropene	ND	5.0
Bromomethane	ND	10.0	trans-1,3-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0	Ethyl Benzene	ND	5.0
Chlorobenzene	ND	5.0	Methyl Ethyl Ketone	ND	50.0
Chloroethane	ND	10.0	Methylene Chloride	ND	5.0
Chloroform	ND	5.0	1,1,2,2-Tetrachloroethane	ND	5.0
Chloromethane	ND	10.0	Tetrachloroethene	ND	5.0
Dibromochloromethane	ND	5.0	Toluene	23	5.0
1,2-Dichlorobenzene	ND	5.0	1,1,1-Trichloroethane	ND	5.0
1,3-Dichlorobenzene	ND	5.0	1,1,2-Trichloroethane	ND	5.0
1,4-Dichlorobenzene	ND	5.0	Trichloroethene	ND	5.0
1,1-Dichloroethane	ND	5.0	Trichlorofluoromethane	ND	5.0
1,2-Dichloroethane	ND	5.0	Vinyl Chloride	ND	10.0
			Xylenes	ND	5.0

ND = Not detected at or above the
concentration of the detection limit.

ug/kg = ppb

Very truly yours,
FGL ENVIRONMENTAL, INC.


J.G. Patel, M.S.
Environmental Chemist


Eric Lu, Ph.D.
Environmental Chemist

JP/EL:me1

FGL ENVIRONMENTAL

ANALYTICAL CHEMISTS

VOLATILE ORGANICS IN SOIL (GC/MS)
EPA METHOD 8240

October 14, 1988
Lab No. 5913-1

Bermite Division of Whittaker
22116 West Soledad Canyon Road
Saugus, California 91350

Sample Description: Project # 85-01.4 Station # D-B1-10 Node B1 10' Depth
Sampled by: Chris Thompson
Date Sampled: September 12, 1988
Date Received: September 14, 1988 Date Analyzed: September 21, 1988

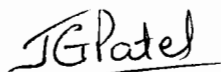
REPORT OF ANALYSIS

Compound	Detection Limit		Compound	Detection Limit	
	mg/kg	mg/kg		mg/kg	mg/kg
Acetone	ND	125	1,1-Dichloroethene	ND	13
Benzene	ND	13	trans-1,2-Dichloroethene	ND	13
Bromodichloromethane	ND	13	1,2-Dichloropropane	ND	13
Bromoform	ND	13	cis-1,3-Dichloropropene	ND	13
Bromomethane	ND	25	trans-1,3-Dichloropropene	ND	13
Carbon Tetrachloride	ND	13	Ethyl Benzene	ND	13
Chlorobenzene	ND	13	Methyl Ethyl Ketone	ND	125
Chloroethane	ND	25	Methylene Chloride	ND	13
Chloroform	ND	13	1,1,2,2-Tetrachloroethane	ND	13
Chloromethane	ND	25	Tetrachloroethene	13	13
Dibromochloromethane	ND	13	Toluene	ND	13
1,2-Dichlorobenzene	ND	13	1,1,1-Trichloroethane	ND	13
1,3-Dichlorobenzene	ND	13	1,1,2-Trichloroethane	ND	13
1,4-Dichlorobenzene	ND	13	Trichloroethene	ND	13
1,1-Dichloroethane	ND	13	Trichlorofluoromethane	ND	13
1,2-Dichloroethane	ND	13	Vinyl Chloride	ND	25
			Xylenes	ND	13

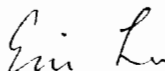
ND = Not detected at or above the
concentration of the detection limit.

mg/kg = ppm

Very truly yours,
FGL ENVIRONMENTAL, INC.



J.G. Patel, M.S.
Environmental Chemist



Eric Lu, Ph.D.
Environmental Chemist

JP/EL:me1

FGL ENVIRONMENTAL

ANALYTICAL CHEMISTS

VOLATILE ORGANICS IN SOIL (GC/MS)
EPA METHOD 8240

October 14, 1988
Lab No. 5913-2

Bermite Division of Whittaker
22116 West Soledad Canyon Road
Saugus, California 91350

Sample Description: Project # 85-01.4 Station # D-A1-10 Node A1 10' Depth
Sampled by: Chris Thompson
Date Sampled: September 12, 1988
Date Received: September 14, 1988 Date Analyzed: September 21, 1988

REPORT OF ANALYSIS

Detection Limit			Detection Limit		
Compound	ug/kg	ug/kg	Compound	ug/kg	ug/kg
Acetone	ND	50.0	1,1-Dichloroethene	ND	5.0
Benzene	ND	5.0	trans-1,2-Dichloroethene	ND	5.0
Bromodichloromethane	ND	5.0	1,2-Dichloropropane	ND	5.0
Bromoform	ND	5.0	cis-1,3-Dichloropropene	ND	5.0
Bromomethane	ND	10.0	trans-1,3-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0	Ethyl Benzene	ND	5.0
Chlorobenzene	ND	5.0	Methyl Ethyl Ketone	ND	50.0
Chloroethane	ND	10.0	Methylene Chloride	ND	5.0
Chloroform	ND	5.0	1,1,2,2-Tetrachloroethane	ND	5.0
Chloromethane	ND	10.0	Tetrachloroethene	ND	5.0
Dibromochloromethane	ND	5.0	Toluene	15	5.0
1,2-Dichlorobenzene	ND	5.0	1,1,1-Trichloroethane	ND	5.0
1,3-Dichlorobenzene	ND	5.0	1,1,2-Trichloroethane	ND	5.0
1,4-Dichlorobenzene	ND	5.0	Trichloroethene	17	5.0
1,1-Dichloroethane	ND	5.0	Trichlorofluoromethane	ND	5.0
1,2-Dichloroethane	ND	5.0	Vinyl Chloride	ND	10.0
			Xylenes	ND	5.0

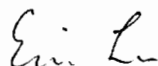
ND = Not detected at or above the
concentration of the detection limit.

ug/kg = ppb

Very truly yours,
FGL ENVIRONMENTAL, INC.



J.G. Patel, M.S.
Environmental Chemist



Eric Lu, Ph.D.
Environmental Chemist

JP/EL:mel

FGL ENVIRONMENTAL

ANALYTICAL CHEMISTS

VOLATILE ORGANICS IN SOIL (GC/MS)
EPA METHOD 8240

October 14, 1988
Lab No. 5913-3

Bermite Division of Whittaker
22116 West Soledad Canyon Road
Saugus, California 91350

Sample Description: Project # 85-01.4 Station # D-B2-12 Node B2 12' Depth
Sampled by: Chris Thompson
Date Sampled: September 13, 1988
Date Received: September 14, 1988 Date Analyzed: September 21, 1988

REPORT OF ANALYSIS

Detection Limit			Detection Limit		
Compound	ug/kg	ug/kg	Compound	ug/kg	ug/kg
Acetone	3000	1250	1,1-Dichloroethene	ND	125
Benzene	ND	125	trans-1,2-Dichloroethene	ND	125
Bromodichloromethane	ND	125	1,2-Dichloropropane	ND	125
Bromoform	ND	125	cis-1,3-Dichloropropene	ND	125
Bromomethane	ND	250	trans-1,3-Dichloropropene	ND	125
Carbon Tetrachloride	ND	125	Ethyl Benzene	ND	125
Chlorobenzene	ND	125	Methyl Ethyl Ketone	2800	1250
Chloroethane	ND	250	Methylene Chloride	ND	125
Chloroform	ND	125	1,1,2,2-Tetrachloroethane	ND	125
Chloromethane	ND	250	Tetrachloroethene	3325	125
Dibromochloromethane	ND	125	Toluene	ND	125
1,2-Dichlorobenzene	ND	125	1,1,1-Trichloroethane	ND	125
1,3-Dichlorobenzene	ND	125	1,1,2-Trichloroethane	ND	125
1,4-Dichlorobenzene	ND	125	Trichloroethene	625	125
1,1-Dichloroethane	ND	125	Trichlorofluoromethane	ND	125
1,2-Dichloroethane	ND	125	Vinyl Chloride	ND	250
			Xylenes	ND	125

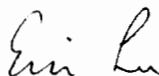
ND = Not detected at or above the
concentration of the detection limit.

ug/kg = ppb

Very truly yours,
FGL ENVIRONMENTAL, INC.



J.G. Patel, M.S.
Environmental Chemist



Eric Lu, Ph.D.
Environmental Chemist

JP/EL:me1

FGL ENVIRONMENTAL

ANALYTICAL CHEMISTS

VOLATILE ORGANICS IN SOIL (GC/MS)
EPA METHOD 8240

October 14, 1988
Lab No. 5913-4

Bermite Division of Whittaker
22116 West Soledad Canyon Road
Saugus, California 91350

Sample Description: Project # 85-01.4 Station # D-A1-12 Node A1 ^{12'}_{10'} Depth
Sampled by: Chris Thompson
Date Sampled: September 13, 1988
Date Received: September 14, 1988 Date Analyzed: September 21, 1988


REPORT OF ANALYSIS

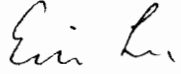
Detection Limit			Detection Limit		
Compound	ug/kg	ug/kg	Compound	ug/kg	ug/kg
Acetone	ND	50.0	1,1-Dichloroethene	ND	5.0
Benzene	ND	5.0	trans-1,2-Dichloroethene	ND	5.0
Bromodichloromethane	ND	5.0	1,2-Dichloropropane	ND	5.0
Bromoform	ND	5.0	cis-1,3-Dichloropropene	ND	5.0
Bromomethane	ND	10.0	trans-1,3-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0	Ethyl Benzene	ND	5.0
Chlorobenzene	ND	5.0	Methyl Ethyl Ketone	ND	50.0
Chloroethane	ND	10.0	Methylene Chloride	ND	5.0
Chloroform	ND	5.0	1,1,2,2-Tetrachloroethane	ND	5.0
Chloromethane	ND	10.0	Tetrachloroethene	ND	5.0
Dibromochloromethane	ND	5.0	Toluene	25	5.0
1,2-Dichlorobenzene	ND	5.0	1,1,1-Trichloroethane	ND	5.0
1,3-Dichlorobenzene	ND	5.0	1,1,2-Trichloroethane	ND	5.0
1,4-Dichlorobenzene	ND	5.0	Trichloroethene	16	5.0
1,1-Dichloroethane	ND	5.0	Trichlorofluoromethane	ND	5.0
1,2-Dichloroethane	ND	5.0	Vinyl Chloride	ND	10.0
			Xylenes	ND	5.0

ND = Not detected at or above the
concentration of the detection limit.

ug/kg = ppb

Very truly yours,
FGL ENVIRONMENTAL, INC.


J.G. Patel, M.S.
Environmental Chemist


Eric Lu, Ph.D.
Environmental Chemist

JP/EL:me1

FGL ENVIRONMENTAL

ANALYTICAL CHEMISTS

VOLATILE ORGANICS IN SOIL (GC/MS)
EPA METHOD 8240

October 14, 1988
Lab No. 5913-5

Bermite Division of Whittaker
22116 West Soledad Canyon Road
Saugus, California 91350

Sample Description: Project # 85-01.4 Station # D-B2-14 Node B2 14' Depth
Sampled by: Chris Thompson
Date Sampled: September 14, 1988
Date Received: September 14, 1988 Date Analyzed: September 21, 1988

REPORT OF ANALYSIS

Detection Limit			Detection Limit		
Compound	mg/kg	mg/kg	Compound	mg/kg	mg/kg
Acetone	ND	125	1,1-Dichloroethene	ND	13
Benzene	ND	13	trans-1,2-Dichloroethene	ND	13
Bromodichloromethane	ND	13	1,2-Dichloropropane	ND	13
Bromoform	ND	13	cis-1,3-Dichloropropene	ND	13
Bromomethane	ND	25	trans-1,3-Dichloropropene	ND	13
Carbon Tetrachloride	ND	13	Ethyl Benzene	ND	13
Chlorobenzene	ND	13	Methyl Ethyl Ketone	ND	125
Chloroethane	ND	25	Methylene Chloride	ND	13
Chloroform	ND	13	1,1,2,2-Tetrachloroethane	ND	13
Chloromethane	ND	25	Tetrachloroethene	16	13
Dibromochloromethane	ND	13	Toluene	ND	13
1,2-Dichlorobenzene	ND	13	1,1,1-Trichloroethane	ND	13
1,3-Dichlorobenzene	ND	13	1,1,2-Trichloroethane	ND	13
1,4-Dichlorobenzene	ND	13	Trichloroethene	25	13
1,1-Dichloroethane	ND	13	Trichlorofluoromethane	ND	13
1,2-Dichloroethane	ND	13	Vinyl Chloride	ND	25
			Xylenes	ND	13


ND = Not detected at or above the
concentration of the detection limit.

mg/kg = ppm

Very truly yours,
FGL ENVIRONMENTAL, INC.



J.G. Patel, M.S.
Environmental Chemist



Eric Lu, Ph.D.
Environmental Chemist

JP/EL:me1

FGL ENVIRONMENTAL

ANALYTICAL CHEMISTS

VOLATILE ORGANICS IN SOIL (GC/MS)
EPA METHOD 8240

October 14, 1988
Lab No. 5913-6

Bermite Division of Whittaker
22116 West Soledad Canyon Road
Saugus, California 91350

Sample Description: Project # 85-01.4 Station # D-B2-14D Node B2 14' Depth
Sampled by: Chris Thompson
Date Sampled: September 14, 1988
Date Received: September 14, 1988 Date Analyzed: September 21, 1988

REPORT OF ANALYSIS

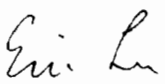
Detection Limit			Detection Limit		
Compound	ug/kg	ug/kg	Compound	ug/kg	ug/kg
Acetone	ND	12500	1,1-Dichloroethene	ND	1250
Benzene	ND	1250	trans-1,2-Dichloroethene	ND	1250
Bromodichloromethane	ND	1250	1,2-Dichloropropane	ND	1250
Bromoform	ND	1250	cis-1,3-Dichloropropene	ND	1250
Bromomethane	ND	2500	trans-1,3-Dichloropropene	ND	1250
Carbon Tetrachloride	ND	1250	Ethyl Benzene	ND	1250
Chlorobenzene	ND	1250	Methyl Ethyl Ketone	ND	12500
Chloroethane	ND	2500	Methylene Chloride	ND	1250
Chloroform	ND	1250	1,1,2,2-Tetrachloroethane	ND	1250
Chloromethane	ND	2500	Tetrachloroethene	5750	1250
Dibromochloromethane	ND	1250	Toluene	ND	1250
1,2-Dichlorobenzene	ND	1250	1,1,1-Trichloroethane	ND	1250
1,3-Dichlorobenzene	ND	1250	1,1,2-Trichloroethane	ND	1250
1,4-Dichlorobenzene	ND	1250	Trichloroethene	2750	1250
1,1-Dichloroethane	ND	1250	Trichlorofluoromethane	ND	1250
1,2-Dichloroethane	ND	1250	Vinyl Chloride	ND	2500
			Xylenes	ND	1250

ND = Not detected at or above the
concentration of the detection limit.

ug/kg = ppb

Very truly yours,
FGL ENVIRONMENTAL, INC.


J.G. Patel, M.S.
Environmental Chemist


Eric Lu, Ph.D.
Environmental Chemist

JP/EL:me1

FGL ENVIRONMENTAL

ANALYTICAL CHEMISTS

VOLATILE ORGANICS IN SOIL (GC/MS)
EPA METHOD 8240

October 14, 1988
Lab No. 5913-7

Bermite Division of Whittaker
22116 West Soledad Canyon Road
Saugus, California 91350

Sample Description: Project # 85-01.4 Station # D-A8-14 Node A8 14' Depth
Sampled by: Chris Thompson
Date Sampled: September 14, 1988
Date Received: September 14, 1988 Date Analyzed: September 21, 1988

REPORT OF ANALYSIS

Detection Limit			Detection Limit		
Compound	ug/kg	ug/kg	Compound	ug/kg	ug/kg
Acetone	ND	50.0	1,1-Dichloroethene	ND	5.0
Benzene	ND	5.0	trans-1,2-Dichloroethene	ND	5.0
Bromodichloromethane	ND	5.0	1,2-Dichloropropane	ND	5.0
Bromoform	ND	5.0	cis-1,3-Dichloropropene	ND	5.0
Bromomethane	ND	10.0	trans-1,3-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0	Ethyl Benzene	ND	5.0
Chlorobenzene	ND	5.0	Methyl Ethyl Ketone	ND	50.0
Chloroethane	ND	10.0	Methylene Chloride	ND	5.0
Chloroform	ND	5.0	1,1,2,2-Tetrachloroethane	ND	5.0
Chloromethane	ND	10.0	Tetrachloroethene	ND	5.0
Dibromochloromethane	ND	5.0	Toluene	19	5.0
1,2-Dichlorobenzene	ND	5.0	1,1,1-Trichloroethane	ND	5.0
1,3-Dichlorobenzene	ND	5.0	1,1,2-Trichloroethane	ND	5.0
1,4-Dichlorobenzene	ND	5.0	Trichloroethene	11	5.0
1,1-Dichloroethane	ND	5.0	Trichlorofluoromethane	ND	5.0
1,2-Dichloroethane	ND	5.0	Vinyl Chloride	ND	10.0
			Xylenes	ND	5.0

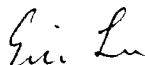
ND = Not detected at or above the
concentration of the detection limit.

ug/kg = ppb

Very truly yours,
FGL ENVIRONMENTAL, INC.



J.G. Patel, M.S.
Environmental Chemist



Eric Lu, Ph.D.
Environmental Chemist

JP/EL:me1

FGL ENVIRONMENTAL

ANALYTICAL CHEMISTS

VOLATILE ORGANICS IN SOIL (GC/MS)
EPA METHOD 8240

October 14, 1988
Lab No. 5916-1

Bermite Division of Whittaker
22116 West Soledad Canyon Road
Saugus, California 91350

Sample Description: Project # 85-01.4 Station # D-B3-16 Node B3 16' Depth
Sampled by: Chris Thompson
Date Sampled: September 14, 1988
Date Received: September 16, 1988 Date Analyzed: October 3, 1988

REPORT OF ANALYSIS

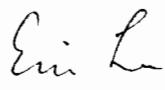
Detection Limit			Detection Limit		
Compound	ug/kg	ug/kg	Compound	ug/kg	ug/kg
Acetone	3400	50.0	1,1-Dichloroethene	ND	5.0
Benzene	ND	5.0	trans-1,2-Dichloroethene	ND	5.0
Bromodichloromethane	ND	5.0	1,2-Dichloropropane	ND	5.0
Bromoform	ND	5.0	cis-1,3-Dichloropropene	ND	5.0
Bromomethane	ND	10.0	trans-1,3-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0	Ethyl Benzene	ND	5.0
Chlorobenzene	ND	5.0	Methyl Ethyl Ketone	230	50.0
Chloroethane	ND	10.0	Methylene Chloride	ND	5.0
Chloroform	ND	5.0	1,1,2,2-Tetrachloroethane	ND	5.0
Chloromethane	ND	10.0	Tetrachloroethene	144	5.0
Dibromochloromethane	ND	5.0	Toluene	ND	5.0
1,2-Dichlorobenzene	ND	5.0	1,1,1-Trichloroethane	ND	5.0
1,3-Dichlorobenzene	ND	5.0	1,1,2-Trichloroethane	ND	5.0
1,4-Dichlorobenzene	ND	5.0	Trichloroethene	95	5.0
1,1-Dichloroethane	ND	5.0	Trichlorofluoromethane	ND	5.0
1,2-Dichloroethane	ND	5.0	Vinyl Chloride	ND	10.0
			Xylenes	ND	5.0

ND = Not detected at or above the
concentration of the detection limit.

ug/kg = ppb

Very truly yours,
FGL ENVIRONMENTAL, INC.


J.G. Patel, M.S.
Environmental Chemist


Eric Lu, Ph.D.
Environmental Chemist

JP/EL:me1

FGL ENVIRONMENTAL

ANALYTICAL CHEMISTS

VOLATILE ORGANICS IN SOIL (GC/MS)
EPA METHOD 8240

October 14, 1988
Lab No. 5916-2

Bermite Division of Whittaker
22116 West Soledad Canyon Road
Saugus, California 91350

Sample Description: Project # 85-01.4 Station # D-A7-16 Node A7 16' Depth
Sampled by: Chris Thompson
Date Sampled: September 14, 1988
Date Received: September 16, 1988 Date Analyzed: October 3, 1988

REPORT OF ANALYSIS

Detection Limit			Detection Limit		
Compound	ug/kg	ug/kg	Compound	ug/kg	ug/kg
Acetone	150	50.0	1,1-Dichloroethene	ND	5.0
Benzene	ND	5.0	trans-1,2-Dichloroethene	ND	5.0
Bromodichloromethane	ND	5.0	1,2-Dichloropropane	ND	5.0
Bromoform	ND	5.0	cis-1,3-Dichloropropene	ND	5.0
Bromomethane	ND	10.0	trans-1,3-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0	Ethyl Benzene	ND	5.0
Chlorobenzene	ND	5.0	Methyl Ethyl Ketone	ND	50.0
Chloroethane	ND	10.0	Methylene Chloride	ND	5.0
Chloroform	ND	5.0	1,1,2,2-Tetrachloroethane	ND	5.0
Chloromethane	ND	10.0	Tetrachloroethene	ND	5.0
Dibromochloromethane	ND	5.0	Toluene	11	5.0
1,2-Dichlorobenzene	ND	5.0	1,1,1-Trichloroethane	ND	5.0
1,3-Dichlorobenzene	ND	5.0	1,1,2-Trichloroethane	ND	5.0
1,4-Dichlorobenzene	ND	5.0	Trichloroethene	16	5.0
1,1-Dichloroethane	ND	5.0	Trichlorofluoromethane	ND	5.0
1,2-Dichloroethane	ND	5.0	Vinyl Chloride	ND	10.0
			Xylenes	ND	5.0

ND = Not detected at or above the
concentration of the detection limit.

ug/kg = ppb

Very truly yours,
FGL ENVIRONMENTAL, INC.



J.G. Patel, M.S.
Environmental Chemist



Eric Lu, Ph.D.
Environmental Chemist

JP/EL:mel

FGL ENVIRONMENTAL

ANALYTICAL CHEMISTS

VOLATILE ORGANICS IN SOIL (GC/MS)
EPA METHOD 8240

October 14, 1988
Lab No. 5916-3

Bermite Division of Whittaker
22116 West Soledad Canyon Road
Saugus, California 91350

Sample Description: Project # 85-01.4 Station # D-B2-18 Node B2 18' Depth
Sampled by: Chris Thompson
Date Sampled: September 16, 1988
Date Received: September 16, 1988 Date Analyzed: October 3, 1988

REPORT OF ANALYSIS

Compound	Detection Limit		Compound	Detection Limit	
	ug/kg	ug/kg		ug/kg	ug/kg
Acetone	6065	1250	1,1-Dichloroethene	ND	125
Benzene	ND	125	trans-1,2-Dichloroethene	ND	125
Bromodichloromethane	ND	125	1,2-Dichloropropane	ND	125
Bromoform	ND	125	cis-1,3-Dichloropropene	ND	125
Bromomethane	ND	250	trans-1,3-Dichloropropene	ND	125
Carbon Tetrachloride	ND	125	Ethyl Benzene	ND	125
Chlorobenzene	ND	125	Methyl Ethyl Ketone	3700	1250
Chloroethane	ND	250	Methylene Chloride	ND	125
Chloroform	ND	125	1,1,2,2-Tetrachloroethane	ND	125
Chloromethane	ND	250	Tetrachloroethene	860	125
Dibromochloromethane	ND	125	Toluene	ND	125
1,2-Dichlorobenzene	ND	125	1,1,1-Trichloroethane	ND	125
1,3-Dichlorobenzene	ND	125	1,1,2-Trichloroethane	ND	125
1,4-Dichlorobenzene	ND	125	Trichloroethene	2100	125
1,1-Dichloroethane	ND	125	Trichlorofluoromethane	ND	125
1,2-Dichloroethane	ND	125	Vinyl Chloride	ND	250
			Xylenes	ND	125

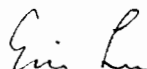
ND = Not detected at or above the
concentration of the detection limit.

ug/kg = ppb

Very truly yours,
FGL ENVIRONMENTAL, INC.



J.G. Patel, M.S.
Environmental Chemist



Eric Lu, Ph.D.
Environmental Chemist

JP/EL:me1

FGL ENVIRONMENTAL

ANALYTICAL CHEMISTS

VOLATILE ORGANICS IN SOIL (GC/MS)
EPA METHOD 8240

October 14, 1988
Lab No. 5916-4

Bermite Division of Whittaker
22116 West Soledad Canyon Road
Saugus, California 91350

Sample Description: Project # 85-01.4 Station # D-D4-18 Node D4 18' Depth
Sampled by: Chris Thompson
Date Sampled: September 16, 1988
Date Received: September 16, 1988 Date Analyzed: October 3, 1988

REPORT OF ANALYSIS


Detection Limit			Detection Limit		
<u>Compound</u>	<u>ug/kg</u>	<u>ug/kg</u>	<u>Compound</u>	<u>ug/kg</u>	<u>ug/kg</u>
Acetone	ND	50.0	1,1-Dichloroethene	ND	5.0
Benzene	ND	5.0	trans-1,2-Dichloroethene	ND	5.0
Bromodichloromethane	ND	5.0	1,2-Dichloropropane	ND	5.0
Bromoform	ND	5.0	cis-1,3-Dichloropropene	ND	5.0
Bromomethane	ND	10.0	trans-1,3-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0	Ethyl Benzene	ND	5.0
Chlorobenzene	ND	5.0	Methyl Ethyl Ketone	ND	50.0
Chloroethane	ND	10.0	Methylene Chloride	ND	5.0
Chloroform	ND	5.0	1,1,2,2-Tetrachloroethane	ND	5.0
Chloromethane	ND	10.0	Tetrachloroethene	ND	5.0
Dibromochloromethane	ND	5.0	Toluene	ND	5.0
1,2-Dichlorobenzene	ND	5.0	1,1,1-Trichloroethane	ND	5.0
1,3-Dichlorobenzene	ND	5.0	1,1,2-Trichloroethane	ND	5.0
1,4-Dichlorobenzene	ND	5.0	Trichloroethene	8	5.0
1,1-Dichloroethane	ND	5.0	Trichlorofluoromethane	ND	5.0
1,2-Dichloroethane	ND	5.0	Vinyl Chloride	ND	10.0
			Xylenes	ND	5.0

ND = Not detected at or above the
concentration of the detection limit.

ug/kg = ppb

Very truly yours,
FGL ENVIRONMENTAL, INC.


J.G. Patel, M.S.
Environmental Chemist


Eric Lu, Ph.D.
Environmental Chemist

JP/EL:me1

FGL ENVIRONMENTAL

ANALYTICAL CHEMISTS

VOLATILE ORGANICS IN SOIL (GC/MS)
EPA METHOD 8240

October 14, 1988
Lab No. 5916-5

Bermite Division of Whittaker
22116 West Soledad Canyon Road
Saugus, California 91350

Sample Description: Project # 85-01.4 Station # D-B2-20 Node B2 20' Depth
Sampled by: Chris Thompson
Date Sampled: September 16, 1988
Date Received: September 16, 1988 Date Analyzed: October 3, 1988

REPORT OF ANALYSIS

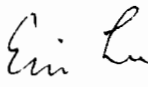
Detection Limit			Detection Limit		
Compound	ug/kg	ug/kg	Compound	ug/kg	ug/kg
Acetone	ND	1250	1,1-Dichloroethene	ND	125
Benzene	ND	125	trans-1,2-Dichloroethene	ND	125
Bromodichloromethane	ND	125	1,2-Dichloropropane	ND	125
Bromoform	ND	125	cis-1,3-Dichloropropene	ND	125
Bromomethane	ND	250	trans-1,3-Dichloropropene	ND	125
Carbon Tetrachloride	ND	125	Ethyl Benzene	ND	125
Chlorobenzene	ND	125	Methyl Ethyl Ketone	ND	1250
Chloroethane	ND	250	Methylene Chloride	ND	125
Chloroform	8300	125	1,1,2,2-Tetrachloroethane	ND	125
Chloromethane	ND	250	Tetrachloroethene	ND	125
Dibromochloromethane	ND	125	Toluene	ND	125
1,2-Dichlorobenzene	ND	125	1,1,1-Trichloroethane	ND	125
1,3-Dichlorobenzene	ND	125	1,1,2-Trichloroethane	ND	125
1,4-Dichlorobenzene	ND	125	Trichloroethene	8150	125
1,1-Dichloroethane	ND	125	Trichlorofluoromethane	ND	125
1,2-Dichloroethane	ND	125	Vinyl Chloride	ND	250
			Xylenes	ND	125

ND = Not detected at or above the
concentration of the detection limit.

ug/kg = ppb

Very truly yours,
FGL ENVIRONMENTAL, INC.


J.G. Patel, M.S.
Environmental Chemist


Eric Lu, Ph.D.
Environmental Chemist

JP/EL:me1

FGL ENVIRONMENTAL

ANALYTICAL CHEMISTS

VOLATILE ORGANICS IN SOIL (GC/MS)
EPA METHOD 8240

October 14, 1988
Lab No. 5916-6

Bermite Division of Whittaker
22116 West Soledad Canyon Road
Saugus, California 91350

Sample Description: Project # 85-01.4 Station # D-AG-20 Node A7 20' Depth
Sampled by: Chris Thompson
Date Sampled: September 16, 1988
Date Received: September 16, 1988 Date Analyzed: October 3, 1988

REPORT OF ANALYSIS

Detection			Detection		
Limit			Limit		
Compound	ug/kg	ug/kg	Compound	ug/kg	ug/kg
Acetone	2800	50.0	1,1-Dichloroethene	ND	5.0
Benzene	ND	5.0	trans-1,2-Dichloroethene	ND	5.0
Bromodichloromethane	ND	5.0	1,2-Dichloropropane	ND	5.0
Bromoform	ND	5.0	cis-1,3-Dichloropropene	ND	5.0
Bromomethane	ND	10.0	trans-1,3-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0	Ethyl Benzene	ND	5.0
Chlorobenzene	ND	5.0	Methyl Ethyl Ketone	100	50.0
Chloroethane	ND	10.0	Methylene Chloride	ND	5.0
Chloroform	ND	5.0	1,1,2,2-Tetrachloroethane	ND	5.0
Chloromethane	ND	10.0	Tetrachloroethene	ND	5.0
Dibromochloromethane	ND	5.0	Toluene	28	5.0
1,2-Dichlorobenzene	ND	5.0	1,1,1-Trichloroethane	ND	5.0
1,3-Dichlorobenzene	ND	5.0	1,1,2-Trichloroethane	ND	5.0
1,4-Dichlorobenzene	ND	5.0	Trichloroethene	22	5.0
1,1-Dichloroethane	ND	5.0	Trichlorofluoromethane	ND	5.0
1,2-Dichloroethane	ND	5.0	Vinyl Chloride	ND	10.0
			Xylenes	ND	5.0

ND = Not detected at or above the
concentration of the detection limit.

ug/kg = ppb

Very truly yours,
FGL ENVIRONMENTAL, INC.



J.G. Patel, M.S.
Environmental Chemist



Eric Lu, Ph.D.
Environmental Chemist

JP/EL:me1



Wenck Associates, Inc.

Consulting Engineers
(612) 475-0858
FAX — (612) 476-0504

February 9, 1989

Mr. Alan Sorsher
California Department of Health Services
Toxic Substances Control Division III
1405 North San Fernando Boulevard
Suite 300
Burbank, California 91504

Re: Subsurface Vapor Probe Plan, 317 Area, Bermite Division
Whittaker Corporation

Dear Mr. Sorsher:

Please find attached two copies of the above referenced report for your review and approval. The report is submitted in accordance with the RCRA Closure Plan for Bermite. I believe the details of the probe construction are in accordance with our conversation at Bermite in January which took place during the groundwater sampling event.

Included in this report are the field and laboratory results from the most recent soils removal activities at the 317 Area. These results form the basis of our decision as to where the initial vapor probes will be located.

The installation and testing of these vapor probes are another step towards closure of the 317 Area, the only RCRA unit at Bermite that has not yet been closed. Because no other closure activities are taking place at Bermite, we would like to proceed as quickly as possible to have this plan approved and to begin construction and testing of the vapor probes.